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U.S. Scanner News

A Magazine for the Scanner Hobbyist

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Monthly Columns

U.S. Government
Antennas
Beginners Corner
Computers and Scanning
The Scanner Man
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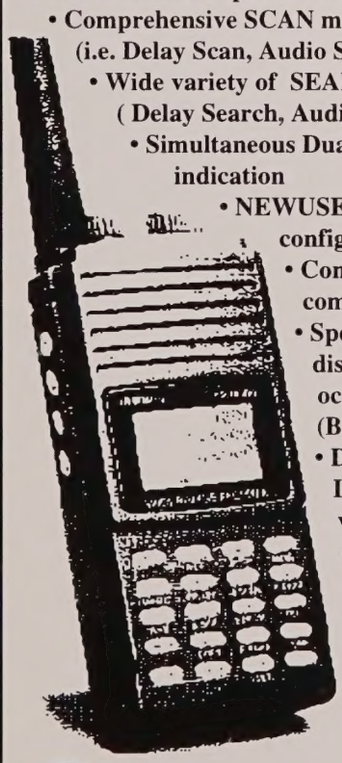

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Memories: 400 (4 banks/100 channels)
Scan Rate: 50 ch/sec.
Search Rate: 50 steps/sec
Sensitivity(µV): 2.5-1800MHz CW, SSB .25/AM1.0/FMN .35/FMW 3.0
Selectivity: SSB,CW 2.4kHz/ AM,FMN 12kHz FMW 180kHz
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WINDOWS SOFTWARE FOR THE AR3000A

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- **Microsoft Windows Program** - foreground and background
- **On-line help** - *Windows* hypertext provides information you need, also dialogues have "help" function
- **Fully supported *Windows* Sound Recording** - Correctly configured compatible sound card allows recording from your receiver while scanning or analyzing frequencies. A log contains all the recordings for replay.
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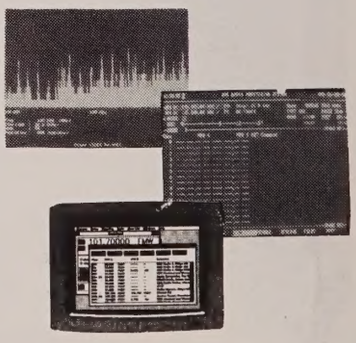
- **Copy date to & from clipboard** Bulk editing and export data base (not supplied) or other *Window* applications.
- **Memory scan and Programmable Band Scan** - Provides a histogram display showing the activity of each channel. Full control is provided including a cursor indicator and sound recording (optional).



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USSN - Contents

August 1995 Volume 8 Number 8

2 **Government** *by Roger Cravens*
The U.S. Immigration and Naturalization Service

5 **New Windows on the World** *by W. Clem Small, KR6A*
"Newly Available" Frequency Allocations

6 **Antennas For Today's Scanners** *by W. Clem Small, KR6A*
Antennas for those. "Newly Available" Frequencies

8 **Computers and Scanning** *by W. Lonnie Gorsline*
Spreadsheet Programs as a Frequency Database

10 **FCC Call Signs**
Another Trip Down Memory Lane.

12 **The Scanner Man**
Elevator music on your scanner

13 **The Other-Half** *by Janet Cravens*
Sneakers

14 **Railroad Monitoring**
Railroad Frequencies

17 **Transportation** *by Roger West*
East Central Minnesota-Northwestern Wisconsin

22 **Space Communications** *by Donald E. Dickerson, N9CUE*
SCPC Comms

24 **Technical Stuff** *by Steve Donnell, WA1YKL*
JIM-51 Preamp

27 **Beginner's Corner** *by Michael Martin*
Antenna Spotting

28 **Public Safety Communications** *by Ed Muro*
The Emergency Medical Radio Service

31 **Frequency Forum** *by O.E. Simonson*
May FCC Updates

48 **Product Review**
Book Reviews

50 **Product Announcements**

51 **FCC News**

53 **Blue Angels and Airshow Up-Date**

Crewmen on an excursion steam locomotive (SP4449) greasing the connecting rods between the drive wheels. Notice the size of the wheels, this engine obviously was built for speed. See story on page 14.

Photo by R.L. Gehri

GOVERNMENT

by Roger Cravens

The Immigration and Naturalization Service

If you all will please excuse me, but in the June edition I mentioned that I would re-visit another Department of Transportation agency. Well, things really got hopping here in Atlanta and the Southeast with of the Immigration and Naturalization Service (INS). So if you all will bear with me, by the time this article hits print, we will have already covered the U.S. Customs Service. But I do promise that next month, I will cover more of the Department of Transportation.

The INS is another of what I call "front line" law enforcement, and they have an extremely difficult job defending our borders, states, counties and cities against all those from other countries trying their best to get into this country by taking short cuts.

In the past, the Immigration and Naturalization Service (a branch of the Justice Department) has been in and out of the news. With 1996 quickly approaching, there is going to be a flood of great listening to this government agency. In Atlanta, Georgia, the Olympics will be held during July. As of this writing (June 1995), the INS has been in the throes of a special operation called "Operation Southpaw." From what has been on the news, and the small amount of other information I could find out, the Immigration Service is making sweeps throughout the southern states (especially Atlanta) arresting illegal aliens. They have gone so far as to reach an agreement with the State of Georgia to empty out the state prison system of these illegals (all those not convicted of a felony) and send them back to their home country. The overwhelming majority of detainees are Hispanics from Mexico, Central America and South America. But there are also included in this cultural and racial mix Chinese and mid-eastern citizens who have entered this country through a variety of illegal means. Also of interest are those who are from the Balkans area where the Bosnian exercises are currently taking place. Until recently, I had little knowledge that there were so many calling Atlanta their home. Many had spent hundreds and hundreds of dollars (and a few even thousands of dollars) for bogus identification and work permits.

I have heard on my scanner INS agents loading up and driving off with entire bus loads (convoys?) of illegal aliens. Bus after bus after bus. Many of you have heard on your local news of small arrests in the larger metro areas and cities. Well, this isn't one of those times. The federal government, through the INS for enforcement, and in concert with the Drug Enforcement Agency, are very serious about aliens and their illegal entry into this country.

Even Congress has started to express concern and make changes. Immigration initiatives, under the heading of the Violet Crime Control Act authorizes $338 million (FY 1995-1998) to reform the often-abused asylum process, a large enforcement vulnerability in the immigration system. $49 million has been appropriated for these efforts in FY 1995.

The Immigration and Naturalization Service will focus its reform efforts on a streamlined, asylum-application process, expedited adjudication of asylum claims, and prompt deportation of applicants not qualifying for asylum.

With these new resources, INS and the Executive Office for Immigration Review will nearly double the current Asylum Officer Corps and increase the number of Immigration Judges and attorneys. These officials are responsible for reviewing and adjudicating asylum claims.

The proposed regulations to reform the asylum process were published in March 1994, and final regulations are expected to be published shortly.

The Violent Crime Control Act further authorizes $160 million (FY 1995-1998) for the expedited deportation of criminal aliens. Another $54 million has been appropriated for FY 1995.

The INS and the Executive Office for Immigration Review (EOIR) will further use these resources to expand the Institutional Hearing Program in the federal prison system and in the five states with the highest concentrations of incarcerated aliens (CA, TX, NY, FL, and IL). Through the enhanced Institutional Hearing Program, the Department will complete deportation proceedings against criminal aliens before they finish serving their sentences. This will ensure that criminal aliens found deportable will be immediately deported upon their release from incarceration. In addition, INS and EOIR will increase investigative personnel, deportation officers, and detention enforcement officers assigned to the Institutional Hearing Program. INS will also establish an Automated Fingerprint Identification System (AFID), which will be compatible with other law enforcement agencies. This system will permit the rapid and accurate identification of aliens apprehended by state and local law enforcement officers.

With these new efforts, the Department expects to double the level of criminal aliens deported from this country each year, from a current level of 20,000 to 40,000.

The new Act also provides for $675 million (FY 1995-1998) for increased resources for the Border Patrol, the Inspection Program, and the Deportation Branch to apprehend illegal aliens who attempt clandestine entry into the United States, who attempt reentry with fraudulent documents, or who remain in this country after their visas expire. An additional $236 million has been appropriated for FY 1995.

Primarily, the INS will use these new resources to gain control of the San Diego and El Paso border areas and to continue the same strategy of prevention through deterrence in the remaining Southwest border areas.

During the course of 1995, the INS will add 700 new Border Patrol agents and redeploy 240 trained agents from desk duty and paperwork processing to the front lines. The redeployment will be accomplished through substantial improvements to INS automation and technology capabilities that free more agents for on-the-line duties.

By the end of FY 1995, Border Patrol enforcement hours dedicated to on-the-line activities will be increased by 45% nationwide.

The new resources will further permit INS to fully equip Border Patrol agents and other INS officials with state of the art tools, including encrypted radios, sensors, vehicles, new or upgraded telecommunications, automated booking and fingerprinting technology, and automated databases that will help INS officers identify repeat crossers and smugglers. INS will also strengthen its capability at Ports of Entry and overseas to prevent entry of illegal aliens and to reduce organized smuggling efforts.

This new Congressional act provides for other provisions:

a. Enhanced penalties for alien smuggling.

b. Expedited deportation for certain criminal aliens who are not permanent residents.

c. Enhanced penalties for failing to depart after final order of deportation.

d. Enhanced penalties for passport and visa offenses.

e. Alien witness cooperation and counterterrorism information (this is a new nonimmigrant category limited to 125 visas per year for aliens who possess critical and essential intelligence information concerning criminal organizations for enterprises and who are willing to supply this information for Federal law enforcement authorities.)

f. Authority to accept certain assistance from state and local governments.

g. Self-petitioning rights for battered spouses or spouses with abused children.

So in terms of immigration and law enforcement, this is an extremely busy and interesting agency to listen to. From the information gained while doing this article, and from personal experience, the frequencies below have heated up during 1995, and promise to continue their increased activity and events throughout most of the end of this century. The Olympics of 1996 here in Atlanta ought to keep any listener occupied and happy for many, many hours.

As usual, I hope this gives you all have a better perspective and appreciation of how our tax money is being spent and that you will be able to listen to these important public servants almost invisibly going about their day-to-day duties to protect you.

Until next month - if you're going on vacation, take your scanner along for the ride. You never know what you'll find yourself in the middle of.

Roger Cravens
KE4YQZ

USSN

Immigration Frequencies of Interest

042.1800 Mobiles; Transportation Buses
042.3400 Bases; Transportation Buses
143.9750
162.6250 Border Patrol
162.8250 Liaison with Customs;Repeater Input to 163.625, 163.675, 163.725, 418.850
162.8500 Repeater Input to 163.625, 163.650, 163.725, 163.750
162.8750 Repeater Input to 163.625, 163.700, 163.725, 163.775, 163.875,
162.9000 Repeater Input to 163.625, 163.700, 163.775
162.9250 Liaison with Customs, Repeater Input to 163.675, 163.725, 413.550, 413.675, 418.850
162.9500 Repeater Input to 163.650, 163.750
162.9750 Repeater Input to 163.625, 163.675, 163.725, 163.775
163.0500 Simplex (Special Operations & Undercover)
163.1000 Simplex (Special Operations & Undercover)
163.2000
163.3750 Simplex (Unknown Use)
163.5500 Simplex (Detention Centers)
163.6000 Border Patrol
163.6250 Liaison with Customs; Repeats 162.825, 162.850, 162.875, 162.900, 162.925, 162.975, 165.875
163.6500 Repeats 162.850, 162.950
163.6625 Border Patrol
163.6750 Liaison with Customs, Repeats 162.825, 162.875, 162.925, 162.975, 418.850
163.7000 Liaison with Marshal Service (Tactical), Repeats 162.875, 162.900
163.7250 Repeats 162.825, 162.850, 162.875, 162.925, 162.975
163.7350 INS/Border Patrol (older Frequency, still active in many areas)
163.7500 Repeats 162.850, 162.950 (Also Undercover Special Operations)
163.7750 Repeats 162.825, 162.875, 162.900, 162.925, 162.975, 165.825
163.8250 Border Crimes Task Force
163.8875
163.9250 Border Patrol Use
163.9625 Border Patrol
165.2375 Border Patrol
165.8000 Simplex, Special Operations, Undercover & Anti-Smuggling
165.8250 Repeats 168.950, Repeater Input to 163.775
165.8500 Simplex, Border Crimes Task Force & Anti-Smuggling
165.8625 Border Patrol
165.8750 Repeats 168.975, Repeater Input to 163.625
165.9000 Simplex; Special Operations, Undercover & Anti-Smuggling
165.9250 Repeater Output, Special Operations & Undercover
165.9750 Repeats 168.875, Special Operations, Undercover & Anti-Smuggling
166.4375
166.4625
167.6375 INS Coordination With Organized Crime Task Force
168.3500 Special Operations, Undercover & Anti-Smuggling
168.8250 Special Operations, Undercover & Anti-Smuggling
168.8500 Special Operations, Undercover & Anti-Smuggling
168.8625 Special Operations, Undercover & Anti-Smuggling
168.8750 Repeater Input to 165.975 Remote Link
168.9000 Simplex (Unknown)
168.9250 Repeater Input to 165.850
168.9500 Repeater Input to 165.825
168.9750 Repeater Input to 165.875
170.6250 Simplex, Intrusion Alarms
170.6500 Simplex, Intrusion Alarms
170.6750 Simplex, Border Alarms & Sectorwide Tactical
170.7000 Simplex, Intrusion Alarms
170.7250 Simplex, Intrusion Alarms
170.7500 Simplex, Shared with Marshall's Service

170.7750 Simplex, Intrusion Alarms
170.8250 Surveillance
171.7250
172.5250
408.2000
408.2250 Remote Link Input; Paired with 417.050
408.2375 Remote Link Output; Paired with 413.625
408.2500
408.2750
408.3000
408.3250
408.3500 Remote Link Input; Paired with 417.075
408.3750
408.4000
413.5500 Control Link
413.6000 Shared with Postal Service
413.6250 Remote Link Input; Paired with 408.2375
413.6500 Remote Link Output; Paired with 418.850
413.6750 Control Link
413.7000 Remote Link Output
413.7250
413.7500 Remote Link Output; Paired with 417.150
413.7500 Remote Link Input; Paired with 417.150
413.7750
414.6250
417.0125
417.0250
417.0500 Remote Link Output; Paired with 408.225
417.0750 Remote Link Output; Paired with 408.350
417.1250
417.1500 Remote Link Output; Paired with 413.750
417.1500 Remote Link Input; Paired with 413.750
417.1750
418.0500 Government Inter-Agency Common
418.0750 Government Inter-Agency Common
418.5750 Government Inter-Agency Common
418.8500 Control Link, Repeater Output; Repeats 162.825, 162.925
418.8500 Remote link Input; Paired with 413.650
418.8750
418.9500
418.9750

Federal Prison System

163.2000 Bureau of Prisons (Operations/Linked with U.S. Martials)
163.8125 Bureau of Prisons (Paired w/163.2000)
170.6500 Bureau of Prisons (Transportation)
170.7500 Bureau of Prisons (Misc. Security)
170.8250 Bureau of Prisons (Misc. Tactical)
170.8500 Bureau of Prisons (Court Security/U.S. Martials)
170.8750 Bureau of Prisons (General Operations)
170.9000 Bureau of Prisons (Misc. Tactical)
170.9250 Bureau of Prisons (General Operations/Special Tactical)
408.6625 Bureau of Prisons (Misc. Tactical)
409.2500 Bureau of Prisons (Misc. Operations)
413.6625 Bureau of Prisons (Belt Alarms)
414.0375 Bureau of Prisons (Misc. Tactical)
414.0375 Bureau of Prisons (Misc. Tactical)
419.4625 Bureau of Prisons (Misc. Tactical)

U.S. Marshall's Service

162.1375
162.7125 Chan. 5; Air-to-Ground; Repeats 170.800;Chan. 6; Simplex; Car-to-Car
162.7875 Chan. 7; Tactical; Repeats 170.850;Chan. 8; Simplex; Car-to-Car
163.2000 Chan. 1; Repeats 163.8125; Chan. 2; Simplex
163.2125
163.7000 Chan. 6; Simplex; Liaison with Border Patrol
163.7250
163.7750
163.8125 Air & Mobiles;Repeater Input to 163.200, 164.600
164.2000 Chan. 2; Dispatch
164.4000 Mobile Extenders
164.6000 Chan. 3; Repeats 163.8125;Chan. 4; Simplex
165.0125
165.0625
165.7125
165.9500
166.4625
166.5250
167.0000
167.6375
167.6875
167.8000
170.6750
170.7500 Simplex; Court Security,Shared w/INS
170.8000 Repeater Input to 162.7125
170.8500 Simplex; Court Security;Repeater Input to 162.7875
172.7125
415.7000
417.6000 Court Security

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NEW WINDOWS ON THE WORLD

by W. Clem Small, KR6A, CET

Scanners and the Lower Frequencies

Traditionally specific segments of the VHF and the UHF band have comprised the whole world of the scanner buff. In the past, when we talked about scanning, it was assumed that we were talking about receiving signals on one of several popular segments of the VHF-UHF spectrum popular with scanning enthusiasts. Almost all of the signals we scanned were FM; a few were AM. But the design of scanning receivers has advanced greatly since the early days of scanner technology, and the wide frequency-agility of some recently-designed scanner receivers makes it possible for scanner buffs to reach beyond their traditional frequencies for a much broader look at the world of radio signals. And instead of being tied mostly to FM and a few AM signals we can now check out signals on AM, FM, CW, and Single SideBand (see table one). In addition, with the proper adapters, we can also add such elegant modes as RTTY, SITOR, Packet and the other digital modes (see table two).

Table 1. Frequency Limits Of Some Radio Bands

Low Frequency (LF)	30-300 kHz
Medium Frequency (MF)	300-3000 kHz
High Frequency (HF)	3-30 MHz
Very-high Frequency (VHF)	30-300 MHz
Ultra-high Frequency (UHF)	300-3000 MHz

These "new" frequencies and "new" types of transmissions literally open up new worlds to the scanning enthusiast so let's discuss some of these receivers and then some of the kinds of signals that are found on the "new" scanner bands - signals just waiting there for you to scan once you get one of the new receivers.

A NEW BREED OF SCANNING RECEIVER: At least four new scanner receivers offer the privilege of scanning far outside the traditional VHF-UHF bands: the AR-3000A, the AR-8000, the ICOM R1 and the ICOM R100. Two of these, the 3000A and the 8000, offer the complete AM, wide and narrow FM, upper and lower sideband, and CW reception modes; with appropriate adapters they will also receive the digital modes. The R1 and R100 offer AM and wide and narrow FM modes.

So what does all this mean to you, the scanning enthusiast? Well, it means that you can use these receivers to scan types of signals you may never have heard before; many of these are signals that may interest you considerably. For instance there are many utility, military, commercial, broadcast and amateur signals on these bands, and you will find all the types of transmissions mentioned earlier (AM, FM, SSB, CW, and the digital modes) utilized on these bands.

On these "new" bands you can tune in on domestic MF broadcasting from your own country or from neighboring countries, international shortwave broadcasts from numerous countries around the world, ship-to-shore messages from merchant marine ships sailing the world's oceans, radio beacons used by aircraft to "home-in" on airfields, radio direction-finding signals such as Omega, amateur radio operators from around the globe, military action from the battlefields of foreign countries, clandestine or spy transmissions from unknown locations, unlicensed pirate broadcasters and more. Signals from hundreds or even thousands of miles away are easily received on the MF and HF band, and reception of signals from the opposite side of the world is easy on the HF band when the band conditions are right. With adapters available from the sources listed below, many of the digital signals you hear, such as RTTY, SITOR, Packet, will share their messages with you.

Perhaps the best and most complete guide to the newly available LF, MF, HF scanning frequencies is Shortwave Directory which covers the first 30 MHz of the radio frequency spectrum; another good source for frequencies from 4 to 28 MHz is Confidential Frequency List. Check out the catalogs from the companies listed below for these books, for the scanners that cover them, and for adapters for receiving digital-type transmissions.

SOURCE
Electronic Equipment Bank, 323 Mill St. NE, Vienna, VA, 22180
Gilfer Shortwave, 52 Park Ave., Park Ridge, NJ 07656
Grove Enterprises, P.O.Box 98, Brasstown, NC 28902
Universal Radio, 6830 Americana Pkwy, Reynoldsburg, OH 43068,

Table 2. Types Of Transmission

AM (amplitude modulation) information, such as voice or music, is put on the signal by varying the signal's amplitude.

FM (frequency modulation) information, such as voice or music, is put on the signal by varying the signal's frequency. Commercial FM broadcasting is done with wide-band FM; most voice-only FM, such as utility and emergency services communication, is narrow-band FM.

SSB (single sideband) is an AM signal in which the carrier and one sideband are eliminated leaving only one sideband to carry the information.

CW (continuous wave) an unmodualated signal which is keyed on and off in order to convey information. Can be read (decoded) by "ear" by a trained operator. Uses Morse code.

DIGITAL, any of several types of signals which consist of a carrier keyed on and off, as in CW. Digital transmissions are encoded and decoded by mechanical or, more often, by electronic means; they usually utilize error-correcting schemes. The receiver output is usually printed text sent to a computer monitor or printer. Digital modes include RTTY, SITOR, AMTOR, Navtex, Packet, and various other systems.

ANTENNAS FOR TODAY'S SCANNERS

by W. Clem Small, KR6A, CET

Antennas For Those "Newly Available" Scanner Frequencies

Now that scanner-receiver manufacturers are offering scanners with coverage of frequencies below the VHF and UHF bands it seems to be time to begin giving USSN readers an introduction to antennas appropriate to these ""newly-available" frequencies. These "new" frequencies generally extend from the HF band on down through the MF band and somewhat into the LF band; that is from 30 MHz down to 100 kHz. So this month we'll have a survey of some basic antenna types which are useful within the "newly-acquired" chunk of radio spectrum which has been added by the new breed of scanning receiver.

Antennas for the HF or Shortwave Band

The HF band, located just below the VHF band, covers from 3 to 30 MHz. This band has long been known as the "shortwave" band and is famous for supporting around-the-world communications via signals skipping between the earth and the ionosphere. The ionosphere, as you may know, is an ionized portion of the atmosphere located far above the earth and surrounding the earth like a shell.

Radio waves which leave a transmitting antenna at an angle close to the horizon make a long "jump" before they hit the ionosphere and are reflected back to earth. Thus we find that transmitting antennas which have more low-angle radiation tend to support long-haul (DX) communications well, and those with higher radiation angles tend to support closer-in communications. And for receiving we find that a similar rule applies; antennas which respond best to signals arriving at the antenna at a lower angle make good DX antennas and those which respond better to signals arriving from high angles are best for close-in communications.

Vertical groundplanes are examples of non-directional HF antennas with good low-angle responsiveness and are favored by many HF DXers. Horizontally oriented dipoles mounted about a half wavelength above electrical ground* make relatively non-directional HF antennas with decent low-angle responsiveness. Beam antennas such as the Yagi or cubical quad, at about a half wavelength above electrical ground, give good directional, low-angle HF reception patterns.(see fig. 1). HF halfwave dipoles or full-wavelength HF loops mounted a quarterwave above radio ground give high-angle reception patterns which are useful in close-in HF work (see fig. 1).

Antennas for the Medium Frequency Band

The MF band covers from 300 to 3000 kHz (.3 to 3 MHz). Note that this band is lower in frequency than the HF band and that, as the frequency of a radio transmission is made lower that transmission's wavelength becomes longer. Then, as you might expect, when the wavelength of transmission is made longer then the length of the antenna elements required to function efficiently with the longer wavelength is proportionately increased. Thus, antenna elements for HF antennas are longer than those for VHF and much larger than those for UHF. And antennas for MF are larger than those for HF, so much so that we cannot use some HF antenna designs on MF because they would be so large as to be impractical.

Due to the large dimensions of the wavelengths we are dealing with in the MF band we find that, although vertical groundplane antennas and grounded verticals work quite well as non-directional MF receiving antennas, only such well-equipped installations as military, commercial or broadcast stations can afford them. Interestingly, however, in the lower portion of the HF band, the MF band, and lower frequencies, such long antennas are often no better for receiving than are antennas many times smaller. This is mainly because the relatively high level of electrical noise on these bands is more of a limiting factor to reception than is antenna size.

Practical non-directional or near non-directional scanning antennas for the MF band include horizontally-mounted dipoles, full wavelength horizontal loops and vertical antennas considerably shorter than a quarter wavelength high. The Beverage, or

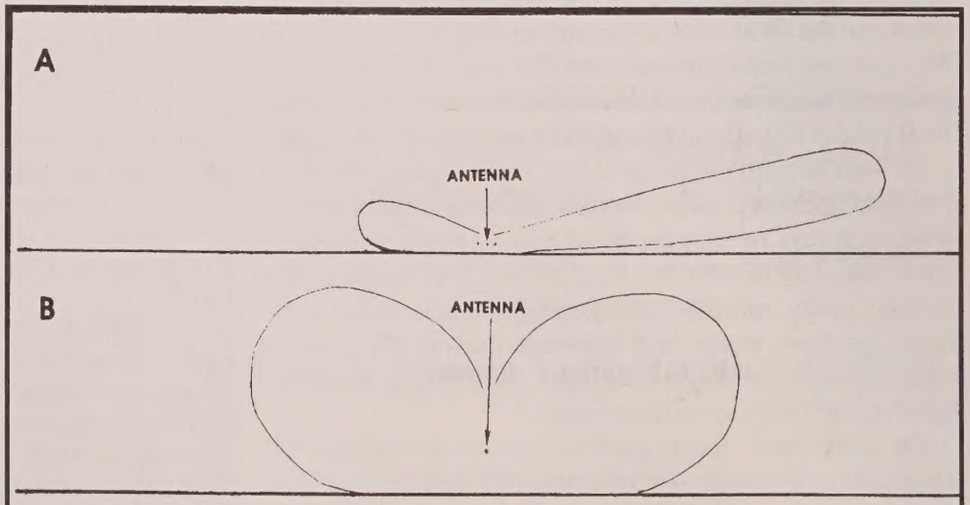

FIG. 1. The vertical reception pattern for a beam antenna (A), and for a dipole antenna (B).

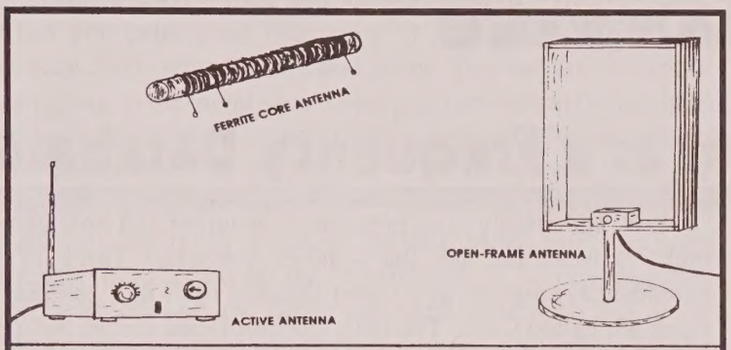

FIG. 2. Three small antennas that can be easily used indoors.

wave, antenna is a practical and effective directional antenna for the MF band. Random-length wires, ferrite-core loops and open-frame (airwound) loops as well as active antennas are also often useful on the MF band (see fig. 2). The loops have highly directional nulls (directions of minimum reception) which are quite useful for "nulling out" interference and for radio direction finding. The active antennas are generally nondirectional and the random-length antennas vary in their directional characteristics depending on their length.

Signals tend to be vertically polarized on the MF bands and below, and so vertical, or vertically polarized antennas are to be preferred there when it is practical to install them. This is particularly true at the lower end of the band and below.

Antennas for the LF band

The LF band includes frequencies from 30 to 300 kHz, however most scanner receivers that tune this band go only as low as 100 kHz. Wavelengths on this band are so long that it is impractical to consider most common antenna designs due to the extremely large dimensions they would require. Designs such as the open-frame loop, ferrite-core loop, and Beverage are useful directional LF antennas. The active-antenna design is a useful non-directional LF antenna, and practical lengths of the random-length antenna are also employed here.

There are a number of antenna designs not mentioned here which are useful on the bands we've discussed. More information on many of these designs is available in my antenna book, The Antenna Handbook, available for $12.95 plus shipping from Grove Enterprises, P.O. Box 98, Brasstown, NC, 28992 (704-837-7081) or The Radio Bookstore, PO Box 209, Ringe, NH, 03461 (800-457-7373).

A Good All-Around Antenna for HF, MF and LF Bands

Any antenna that covers all three of these very wide bands is most certainly a compromise antenna. On the other hand, a compromise is sometimes still a decent solution. If you want to put up just one antenna for scanning these bands then a reasonable option is to put up a random-length wire as high and as long as possible (fig. 3).

Although you can often feed the end of the antenna wire directly to your receiver's antenna input socket with decent success, a much better match is to use a high impedance (the antenna) to low impedance (the receiver's antenna input) matching balun at the end of the antenna; run coax from the balun to the receiver. Such baluns are available from Palomar Engineers, (their model MLB-1, $39.95 + $6.00 s/h), Box 462222, Escondido, CA 92046 (phone 619-747-3343, and from Gilfer Shortwave, (their magnetic longwire balun), 52 Park Ave., Park Ridge, NJ, 07656, phone 800-GILFER-1.

Mount your antenna as far away from buildings and trees as is reasonable. If you have to run it close to a tree or building it may still give you decent service, but never run it near, over or under an electrical power line.

If you live where lightning is a possibility, use some form of lightning-induced damage protection. The minimum here is to never use the antenna in any weather which may produce lightning and always disconnect and ground the antenna when it is not in use.

Another Good All-Around HF, MF, LF Antenna

Active antennas which cover 100 kHz to 30 MHz are available and most of them work well. A problem with active antennas is that they cause intermod distortion and even desensitization when subjected to very strong signal levels. This may occur if there is a radio or TV transmitter located relatively close to your scanning post. This distance may be up to a few miles, depending on the power and frequency of the station. Many people have good results with active antennas; they are often as effective as a 100 feet, or more, longwire at pulling in the signals.

*Electrical ground, also known as "radio ground" is usually somewhat below the surface of the earth, particularly in dry or rocky soil; check any edition of the ARRL Antenna Book for a good discussion of electrical ground.

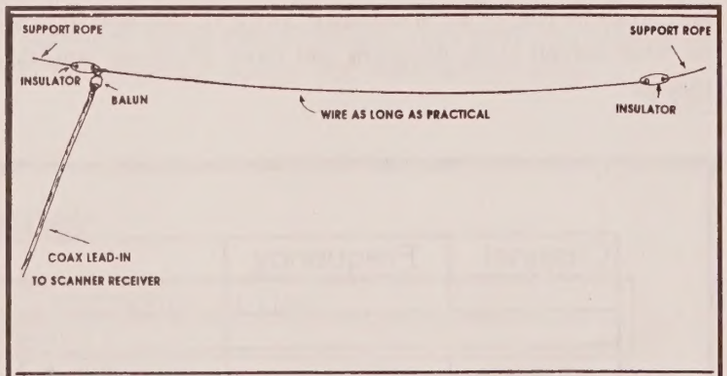

FIG. 3. Diagram of a random-length antenna which makes a good multi-band receiving antenna.

USSN

COMPUTERS AND SCANNING

by Lonnie Gorsline

A Spreadsheet Program as a Frequency Database

Anyone whos been in scanning for over an hour finds out real quickly that you need some way to keep track of the frequencies that are in your scanner. Whether it is sixteen or one thousand, you need to know what frequency is in what channel and what its used for. The number of frequencies you need to keep track of will determine on how you handle them.

Most scanner hobbyists have computers these days, and there's no better way to keep track of your frequencies than with a computer program. Not only can you print out your lists to read them, but you can also change them without having to rewrite the whole list using a pencil and paper.

There are a lot of different programs you can use to put your frequencies in. There is, of course, the old Data Base program. Data bases are fine, but be aware that you have to use the configuration the programmer had in mind. This wouldnt be true if you are going to use a data base program that you make up yourself. But once you have it all set up, its real hard to change anything. What you usually have to do is start over from scratch again.

Then there is the word processor, which is pretty good. You can make your lists and change the information without having to redo everything. All in all, its not bad. In fact, thats the way I used to do it. But I found it somewhat cumbersome, so I found a better way.

Now comes my favorite way to keep track of all those frequencies, the spreadsheet program. Wait a minute, you say, spreadsheet programs are used for crunching numbers for business applications. You're right, but they can also do a lot of other things, like keeping track of your scanner frequencies. In fact, I think they can do a better job than almost any other program. Think about it, you can search for any frequency or channel number - what ever you might have entered in the cells. You can move it, change it, print it, and do almost anything you want. Once you get to know the program, you can even do some programming with macros and do some things automatically. Some of this will depend on what spread sheet program you have. Most are simlilar, though.

So what exactly is a spreadsheet program and how can I make it work for me, the scanner hobbyist? Think of a spreadsheet program as a tablet that has rows and columns; these are called Cells. The cells are numbered across the top and down the side of the sheet. Across the top the cells are identified by letters starting with A and going on to B all the way to how many cells across you want. The cells going down or the columns are numbered starting with 1 and ending with how many cells have. Some programs may be a little different, but as a rule that is the way they work. These cells can hold information, such as text, numbers or formulas. If you plan on putting text or numbers into the cells you can make the cells different lengths; that way you will have to room to put in all of the information you require. For instance, let's say you want to have cells for your scanner channel number, the frequency, PL tone, user, call sign, and any notes. Each one of these areas requires a different cell length. One may only be three or four character long, where another may be 15 to 20. It all depends on how many characters you require. Just use your imagination and see what you come up with.

So how do you set up a spread sheet program to handle your scanner frequencies? Let's go through an example of how you would set one up. Im not going to get real complicated here.

First of all, you need to decide what you want your column headers to say, and in what order. You'll want to have a title for each of the columns that you are going to put information in. Let's say you want to have the Channel Number, Frequency and User. Figure 1 shows what it would look like.

As you can see, its very easy to do. And you can make it as simple or as complex as you want. Make sure you read the instructions for your program so that you know how to make the cells the size you want. From here all you need to do is enter the information under each column heading. You can have the information in each cell centered or justified to the left or right. It depends on what look you are trying to achieve. You may want to have the channel number right justified so its closer to the frequency or you may want it centered. Its what ever you want to do.

Channel	Frequency	Description or User

There are a few little gotchas you need to watch for. One, when you enter your frequency, it will probably not have enough zeros after the decimal point. You can fix this problem going to the menu area where you can format the decimal point and select the correct position. I personally like to have four characters after the decimal. This allows you to enter a frequency such as "450.1125." Another thing you need to watch out for is the width of the cell. Make sure you have enough room to put all the information in. Some programs are easier than others. Some you need to actually put in the number of characters in a Format section. And others all you need to do is use your mouse cursor to widen the cell, by holding down the button and moving the space you want.

Some spreadsheet programs allow you to select whether you want to have the grid lines displayed or not. I like to have the grid lines on my printouts - it makes it easier to read across the lines. You can also make your printed sheets look really nice if you have a color printer. You can select different colors for the different parts of the list. Any priority channels, for example, could be a different color. For those who dont have color printers, you can just change the font style from bold to italic, as an example.

I'll will go through a step-by-step example, using Microsoft Excel V5.0.

1. I want to center the "name" of the scanner this particular list is for. So, looking at my spreadsheet, I want to try and center the title of the printout over my group of cells. I select a cell close to the center of the page and before I enter the name of the scanner, I select the font size of 16, press the Bold button and last, but not least, the center text button using the "Center Across Cells" command. Now I enter the name "Pro-43 Scanner," and press Enter.

2. Now I go down a few rows to separate the title from the information to be entered. I need to have column headings for the frequency and other information. So Im going to select row 3 column A. (I want to have my scanners channel numbers in this column.) My title for this column will be then called "Channel". To do this I have selected my font size; this time it will be a little smaller. Im using a font size of 12. I want the channel to be centered in the cell, so I have selected the "Center" command. This time I dont want it to be in bold, so I deselect the Bold button. Now that the information is entered in the cell, I can widen it just a little to give me some room on each side of the word "Channel".

3. In the next column I want to put the frequency information, so Im going to call that column... what? Yup, you got it.. "Frequency." See, you're getting the hang of it. Now we do exactly the same exact thing as we did before, except you select Row 3 column B. Then just enter the title as you did before.

4. Now for the last column in our example. I want to have a description field to tell me what the frequency is used for. So for this heading Im going to use either "Description" or "User".

5. Now you are ready to start entering all your data. I usually go down column A and put all of the channels that I have in my scanner. Then I will put in all the frequency information in column B. And last, the user information in column C.

When I put in the information, I used a font size of 10, but here again, you can use whatever font size suits you.

Now that you're all done, fig. 2 shows what it should look like. I didnt put all 200 channels in for the sample, but I think you get the idea. I could have made the list real fancy, but I wanted to keep it as simple as possible so that someone who doesnt have a spreadsheet program with all the bells and whistles will get the general idea of how it's done. Besides, you can use your imagination and create a sheet any way you want it. The main thing is to get to know your spreadsheet program and really put it to good use.

I just barely scratched the surface on what can be done with one of these programs. For advanced users, you can make the program do a lot of the work for you. Instead of typing all those channel numbers (especially if you have a thousand of them), you can make the program automatically put them in for you.

Another thing you can do with a spreadsheet program is have it give you a list of frequencies in any step increment you want, from a starting frequency to a ending frequency. This can be very useful if you are going to search a range of frequencies and need a place to note the active frequencies found. Its just a matter of getting to know your program and play around with it!

If you have any good ideas on how you use your spreadsheet program in the hobby, write us and share them. Oh, by the way, the frequencies in fig. 2, for the Vancouver Police department, are no longer correct. They have now gone to an 800 MHz trunked system. But thats another story.

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Pro-43 Scanner

Channel	Frequency	Description or User
1	155.3100	Clark County Sheriff Control 1
2	155.6550	Clark County Sheriff Control 2
3	460.4000	Vancouver Police Control 3
4	460.1750	Vancouver Police Control 4
5	155.0700	Clark County Sheriff Car to Car Control 5

FCC CALL SIGNS

by Geord Dubois

How to Spot those Old Timers

Ever pay any attention to the call signs being used by your typical land mobile stations? Is there any rhyme or reason to the way they are issued? At first glance the answer is "No," and for the most part, this is indeed true. But back in the old days this wasn't the case. And many of these "old time" stations are still around, too.

Look at all the 39 MHz frequencies licensed to the L.A. County Sheriff's old system, most with the call sign KMA 628. Look in Police Call and see how many of the 42 MHz CHP frequencies start with the letters "KM." Here locally, for years our fire department began their transmissions "KOB 647 calling Box (etc.)." A long-time local TV station uses KOP 352. What about your own area?

Back in the 1950's, call signs were assigned on the basis of the geographic location of the station. The accompanying table shows the assignment plan for fixed, land mobile, and radionavigation stations. It was adopted by the Commission in late 1948. At that time, the number of stations in these services was relatively small and there were plenty of call signs available. The system was manageable and easy to administer.

As time went on, the land mobile services experienced a tremendous growth. Most of the call letter assignments were in the "K" series, but some were also made in the "W" series. The call signs allocated for some areas were eventually used up, while relatively fewer were assigned in other areas. As a result, in 1960 the Commission abandoned the geographical assignment plan. They starting issuing licenses in the land mobile services with the familiar three-letter, three number call sign format nationwide. Fixed stations were assigned identifiers in a three-letter, two-number format.

By the late 70's, the FCC reached the point that they had to start issuing call letters in most of the land mobile services in the four-letter, three-digit format used now. These start with the letters K or KN, usually issued to land mobile stations. Call letters beginning with the letters W or WN are usually assigned to Fixed stations.

Those of you with FCC Part 2 are probably well aware that the call sign table in Part 2.302 doesn't show these four-letter, three-number call signs. The FCC just hasn't gotten around to amending the table and has no intention of doing so until the next time they revise Part 2, whenever that may be. Since the new format is only used domestically, for stations above 30 MHz, it's no big deal.

The geographical assignment plan wasn't limited to just FCC-licensed stations. Blocks of call letters are allocated by the Commission to U.S. government agencies for assignment to the stations that they operate. When the geographical assignment plan was in effect, their call signs were selected in conformance with the plan. The call letters were provided when the agencies requested them and were generally chosen from the next available call sign block in the series.

As you are probably aware, there are still many U.S. government stations that use call letters which appear to be in conformance with the old plan. Government users are far less likely to be changing frequencies, or systems, as private users do. Many U.S. Forest Service stations, for example, have been using the same call signs for thirty years.

There is still some uniformity to the call signs being issued by the FCC in some services today. General Mobile Radio Service call signs are issued sequentially. Right now, they appear to be up to KAF xxxx. Most common carriers, including cellular, are issued call letters in the block KNCK xxx. Marine licenses are almost all issued on a local geographical basis, so most recreational boaters (the most numerous) are issued call signs that all appear to have the same prefix (WHW-, WHX-, etc.). And when the FCC was still issuing licenses in the 27 MHz Citizens Radio Service, the last call letters issued were in the four-letter, three-number format, starting with KAAA-. The other land mobile services used call letters starting with the second half of the alphabet, KNAA-. (Evidently, in the late 70's, they planned on issuing a lot of CB licenses!)

The accompanying table shows the old call sign plan. Look under your state, then grab that frequency directory and see if you can spot those "old timers" just by their call letters.

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KA-KB, WA-WB	Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
KC-KD, WC-WD	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
KE-KF, WE-WF	New Jersey, New York
KG-KH, WG-WH	Delaware, District of Columbia, Maryland, Pennsylvania
KI-KJ, WI-WJ	Alabama, Georgia, Florida (including offshore oil rigs), Kentucky, North Carolina, South Carolina, Tennessee, Virginia
KK-KL, WK-WL	Arkansas, Louisiana, Mississippi, Texas (including off shore oil rigs), New Mexico, Oklahoma
KM-KN, WM-WN	California
KO-KP, WO-WP	Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming
KQ-KR, WQ-WR	Michigan, Ohio, West Virginia
KS-KT, WS-WT	Illinois, Indiana, Wisconsin
KU-KV	Pacific (including Hawaii)
KW-KZ	Alaska
WW	Atlantic-Caribbean

Geographical Callsign Assignment Table, Circa 1950's

THE SCANNER MAN

A collection of hints, tips and helpful ideas for the scanner enthusiast. Send your useful hints, suggestions and general-interest questions to: The Scanner Man, USSN, P.O. Box 14923, Portland, Or., 97214.

Prepared by the USSN staff

Elevator Music On Your Scanner

Listen to Muzak, the "canned" music played in elevators and doctors offices everywhere, in the comfort of your own home? Why not? It's easy, since most of the newer systems in fast food restaurants, offices and other locales are carried locally on Multiple Address System (MAS) frequencies.

What are MAS systems? Basically, this is a point-to-multipoint Fixed Radio service. A typical system would consist of a base, or "master," station that interrogates any number of remote stations. There are two frequencies per channel, one for the master, one for the remotes.

Utility companies make extensive use of these frequencies for monitoring of pump stations, power substations and other facilities located throughout their service area. But, according to the FCC's rules, these frequencies are also available for the "transmission of a licensee's products or services to a licensee's customers, or for its own internal communication." Look for the small eight- or nine-element 900 MHz beams, all around town: on a phone pole at the power companies substation or the roof of your nearest Micky-D's.

The allocated frequencies, of differing bandwidths, are spaced 12.5 or 25 kHz apart, from 928.00625 to 928.9875 MHz, with the paired frequency in the band from 952.00625 to 952.9875 MHz. Yes, that frequency is to FIVE decimal places. Rounding off should work - 952.006 or even 952.005. The trouble with the 12.5 kHz channels is that if you round off too far, you're into the next channel.

Search between these frequency limits and you'll hear all kinds be bleeps and bloops: digital signals from everything from alarm companies to ATM machines to utility company telemetry.

And, in many cities, Muzak - delivered by satellite and rebroadcast by an MAS transmitter. Search through and see. The fidelity is fair and the music very "middle of the road." And you'll never hear an announcer! Don't bother trying to listen mobile, though. The multipath ("flutter," similar to what you occasionally experience in your car with the FM Broadcast stations) is just too bad at 900 MHz. And don't try playing the music in a place of business or any other commercial concern. This is verboten. (Actually, Title 18, U.S. Code, prohibits listening to these frequencies at all, but...)

If you already have an SCA adaptor for an FM Broadcast receiver, one thing you'll notice is that the programming is not the same on the two services. Who knows why. Also, many of the newer installations being put in are now satellite-direct to the customer, with a small SCPC (Single Channel Per Carrier) satellite dish at the customers premises receiving the signal straight from the satellite.

USSN

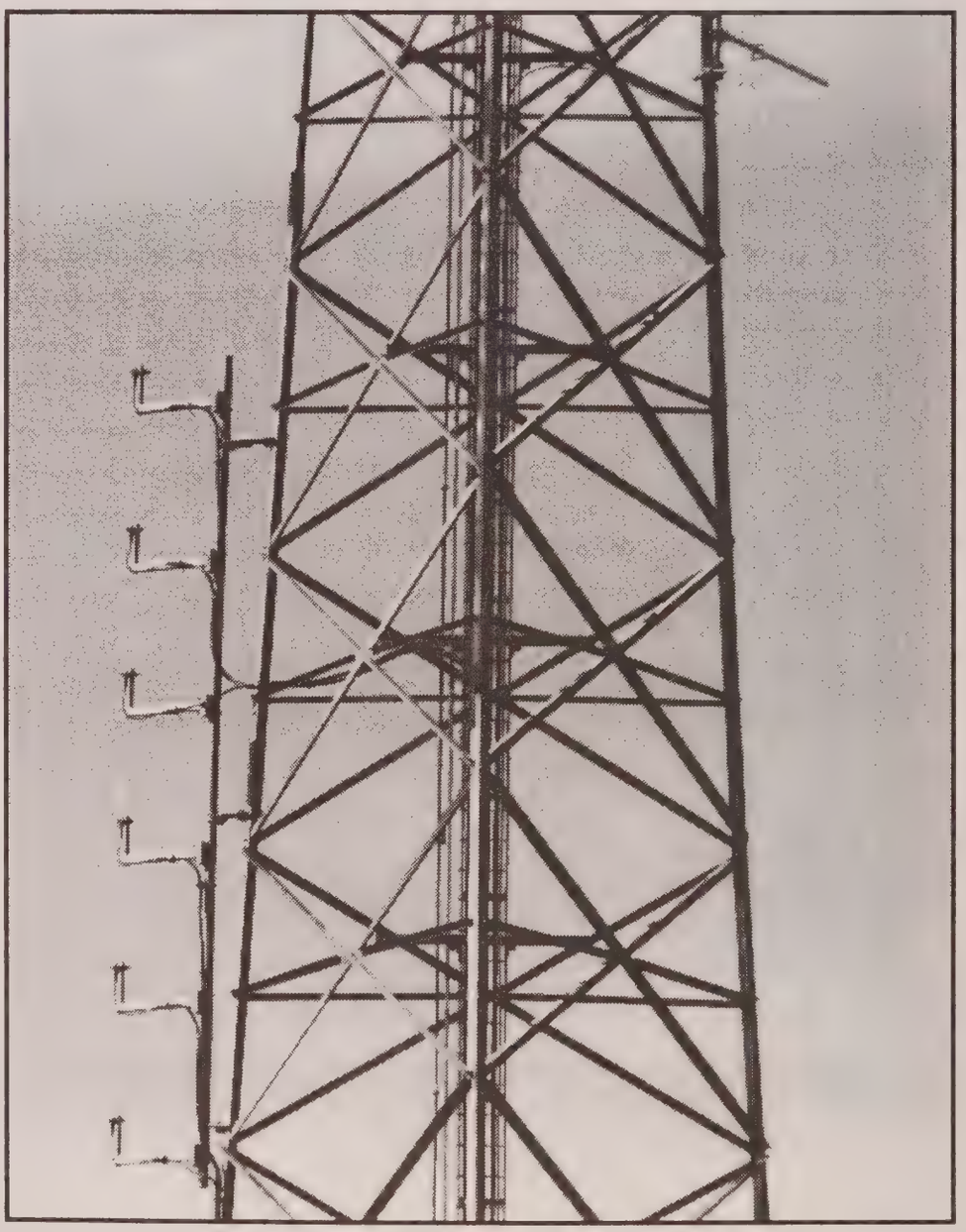

Photo of a multiple-frequency MAS receive site used by a power utility. Directional (beam) antennas are used at remote transmit locations.

THE OTHER HALF

by Janet Cravens

SNEAKERS

Lighten up, guys! This is not brain surgery. You may think the world is coming to an end if you don't get that last frequency NOBODY else has, but chances are, you'll live.

So here I am again. I've decided to try my hand at a monthly newsletter to keep everyone up to date on the occurrences in our scanner's life. Obviously, it sees more action than I do, or else I would tell you about *my* life.

So, last time we discussed a lot of new things I've learned since my husband, Roger, casually mentioned he thought he'd like to have a police scanner. I didn't, however, tell you that the only time he gets a phone call from my mother is because her scanner isn't working anymore; or she needs a new frequency list; or she's lost her page of "ten-codes" and can't figure out what's happening. She calls him almost every Saturday morning to see if he got to listen to that high speed chase from the night before, or see if he knows what's happening over on Anneewakee. Come to think of it, she calls him more often than she calls me. We've been married almost 7 or 8 years (neither of us can remember how long), and the only time he visits my parents is with his radio riding shotgun. But, of course, the radio is not allowed to stay in the van...it has to go into the house like the rest of the family. My sisters and brothers don't understand the obsessiveness of this little habit. I try to tell them that if they'll just ignore him, he won't even realize they're there and we'll get to stay longer. If he "wakes up" and realizes where we are, we'll have to go home sooner.

About the Government Printing Office in Atlanta: what I didn't tell you is that I've discovered I can drive around the block at least 47 times before he can decide what book to purchase and which one to wait until next time to buy. I didn't tell you about all the ugly words people use when I cruise by r-e-a-l s-l-o-w-l-y, just in case he's almost finished and I can save myself another drive around the block. I've learned quite a vocabulary. Unfortunately, I'm not old enough to use words like that. Or to understand them either for that matter.

I've learned not to mind when he informs me "his girl" is back on dispatch. He loves the way she says "clear" - it sounds like Claire. It took me months to realize what she was saying and I'm from the SOUTH! He's been looking for Michelle for a while too, because the last he heard she was working with the Special Investigative Division (SID), but he hasn't "heard from her" in a while.

And I didn't tell you about the night he was in the store buying a newspaper and checking out the perimeter of the store. Every weekend, there seems to be a drug bust or purchase at this particular store, and he thought "his" SID folks were out. While he was in the store, I overheard the detectives talking about where the party was and what the scenario was. So when he came out of the store, I drove on to the party so he could see what was going on. He almost had a stroke! He didn't realize I was going to drive right past the house and check them out. That was the closest we've been to a 10-16; he made me leave the area immediately! Personally, I thought if the cops stopped and asked us what we were doing, we could just tell them we were smurfing around.

So tell me, what's the big deal with being caught? It isn't illegal to listen in on a police scanner, we are living in a country where freedom is synonymous with responsibility - you can't have one without the other, and I figure if a drug bust is going on right in my neighborhood, why should I wait for TOP COPS to see what happened. Roger definitely did not understand my reasoning!

And I'm sure he hasn't told any of you about the day he decided to do a little research up at the Sheriff's Office. He'd been doing lots of reading and research about antennas. He decided he'd go by the sheriff's office on the way back from the dump. Do you know the Sheriff Department didn't really care too much that he just wanted to measure the antennas on the back of their cars. Seems like they thought if they wanted him to know, they would have told him when they issued his driver's license several years ago.

We went to the Braves game a couple of weeks ago. His Pro 2006 and his frequency counter had to go along with us, along with his headphones so he could listen to "stuff". One of the girls from my office works in security; when she saw me and we started talking, he pulled out his frequency counter and began scanning her breast to see what frequency the Braves were transmitting on! Okay, it really was her radio next to her breast, but it sure looked a little flaky to me. If I hadn't been there and seen that, I'd have wondered whose breast he'd been "freq'ing" lately, besides hers. He sat there all through that wonderful ballgame, didn't say a word to me or the boys, listened to his radio, and had himself a time. I guess you could say that for him the Braves game was sort of like that romantic night under the moon I talked to you about last month - you know, where I got to sit there very close to him in the dark, late at night, right under the moon - and the repeater tower in downtown Douglasville--to try and pick up some new frequencies.

Well, time to close for now with a small explanation of how the scanner became the most important piece of equipment in my life. See, one day I happened to mention to my husband that I needed this little piece of metal, plastic, and components and what a wonderful contribution this would be to our lives - and he totally misread me and brought me home a scanner.

Oh well, it's not brain surgery. At least I'll live.

USSN

RAILROAD MONITORING

Prepared by the USSN staff

The railroads operate on frequencies specified by the Federal Communications Commission (FCC) for railroad operations. The frequencies are coordinated by the Association of American Railroads (AAR) and all licenses must pass through their offices before the FCC will authorize use to an applicant.

Listed below are the frequencies as they are set out by the FCC. The UHF frequencies are not used as much as the VHF frequencies because the FCC allocated them on a shared basis with other radio services.

You will find many diverse types of communications on these frequencies. For example, all railroads have one or more channels that are used for Road Communications. This means they are used when a train is traveling between stations. They will receive train orders from the dispatcher, as well as other communications on this frequency.

You will also hear track detectors on the road channel. This is an automated detection system that monitors for such things as bad wheel bearings—hot boxes, dragging equipment and oversize loads. After the train passes the detector a computerized voice will be heard on the road channel to let the engineer know that there is a problem and where it is.

Railroads make use of DOZENS of frequencies for a multitude of other uses, as well. These include yard and switching operations, repair facilities, track maintenance, railroad police, PBX (telephone) and so forth.

There are also many beeps and buzzes on the railroad frequencies. The most common is the end-of-train detector (EDT) on the last car of the train. This device is attached to the air hose and transmits to the engine several pieces of data. If the train should become uncoupled the ETD will let the engineer know via the data transmission.

The railroads can be interesting to listen to when you are traveling. There are many areas that have very little else to monitor! The railroads seem to have transmitters almost everywhere and in those areas you will have something to listen to. Give railroad monitoring a try, you may be surprised at what you will find.

For additional information on monitoring railroad communications, get a copy of **The Compendium of American Railroad Radio Frequencies** by Gary L. Sturm and Mark J. Landgraf. This book is by far the best railroad radio reference book we have ever seen. The book may be purchased from Kalmback Publishing Co., 21027 Crossroads Circle, P.O. Box 1612, Waukesha, WI 53187 for $16.96

End-Of-Train-Detector

The following are the specifications as set down by the Department of Transportation for the ETD. The EDT can be heard in most cases on 457.9375MHz

(a) An end of train device shall be comprised of a rear-of-train unit (rear unit) located on the last car of a train and a front-of-train (front unit) unit located in the cab of the locomotive controlling the train.

(b) Rear unit.
The rear unit shall be capable of determining the rear car brake pipe pressure and transmitting that information to the front unit for display to the locomotive engineer. The rear unit shall be - (1) Capable of measuring the rear car brake pipe pressure with an accuracy of 3 psig and brake pipe pressure variations of 1 psig; (2) Equipped with a 'bleeder valve' that permits the release of any air under pressure from the rear of train unit or the associated air hoses prior to detaching the rear unit from the brake pipe; (3) Designed so that an internal failure will not cause an undesired emergency brake application; (4) Equipped with either an air gauge or a means of visually displaying the rear unit's brake pipe pressure measurement; and (5) Equipped with a pressure relief safety valve to prevent explosion from a high pressure air leak inside the rear unit.

(c) Reporting rate.
Multiple data transmissions from the rear unit shall occur immediately after a variation in the rear car brake pipe pressure of 2 psig and at intervals of not greater than 70 seconds when the rear car brake pipe pressure variation over the 70-second interval is less than 2 psig.

(d) Operating environment.
The rear unit shall be designed to meet the performance requirements of paragraphs (b) and (c) of this section under the following environmental conditions: (1) At temperatures from -40 degrees C to 60 degrees C; (2) At a relative humidity of 95% noncondensing at 50 degrees C; (3) At altitudes of zero to 12,000 feet mean sea level; (4) During vertical and lateral vibrations of 1 to 15 Hz., with 0.5 g. peak to peak, and 15 to 500 Hz., with 5 g. peak to peak; (5) During the longitudinal vibrations of 1 to 15 Hz., with 3 g. peak to peak, and 15 to 500 Hz., with 5 g. peak to peak; and (6) During a shock of 10 g. peak for 0.1 second in any axis.

(e) Unique code.
Each rear unit shall have a unique and permanent identification code that is transmitted along with the pressure message to the front-of-train unit. A code obtained from the Association of American Railroads, 50 F Street, NW., Washington, DC 20036 shall be deemed to be a unique code for purposes of this section. A unique code also may be obtained from the Office of Safety Enforcement (RRS-10), Federal Railroad Administration, Washington, DC 20590.

(f) Front unit.
(1) The front unit shall be designed to receive data messages from the rear unit and shall be capable of displaying the rear car brake pipe pressure in not more than one-pound increments. (2) The display shall be clearly visible and legible in daylight and darkness from the engineer's normal operating position. (3) The front device shall have a means for entry of the unique identification code of the rear unit being used. The front unit shall be designed so that it will display a message only from the rear unit with the same code as entered into the front unit.

VHF Rail Road Frequencies

AAR Ch.	#Freq.	Notes	AAR Ch.	#Freq.	Notes	AAR Ch.	#Freq.	Notes	AAR Ch.	#Freq.	Notes
2	159.8100	1	26	160.5000	3,4,5	50	160.8600	3,4,6	74	161.2200	3,4,6
3	159.9300	1	**27**	160.5150	3,4,5	51	160.8750	3,4,6	75	161.2350	3,4,6
4	160.0500	1	28	160.5300	3,4,5	52	160.8900	3,4,6	76	161.2500	3,4,6
5	160.1850	1	29	160.5450	3,4,5	53	160.9050	3,4,6	77	161.2650	3,4,6
6	160.2000	1	30	160.5600	3,4,5	54	160.9200	3,4,6	78	161.2800	3,4,6
7	160.2150	3,4	31	160.5750	3,4,5	55	160.9350	3,4,6	79	161.2950	3,4,6
8	160.2300	3,4	32	160.5900	3,4,5	56	160.9500	3,4,6	80	161.3100	3,4,6
9	160.2450	3,4	33	160.6050	3,4,5	57	160.9650	3,4,6	81	161.3250	3,4,6
10	160.2600	3,4	34	160.6200	3,4	58	160.9800	3,4,6	82	161.3400	3,4,6
11	160.2750	3,4	35	160.6350	3,4	59	160.9950	3,4,6	83	161.3550	3,4,6
12	160.2900	3,4	36	160.6500	3,4	60	161.0100	3,4,6	84	161.3700	3,4,6
13	160.3050	3,4	37	160.6650	3,4	61	161.0250	3,4,6	85	161.3850	3,4,7
14	160.3200	3,4	38	160.6800	3,4	62	161.0400	3,4,6	86	161.4000	3,4,7
15	160.3350	3,4	39	160.6950	3,4	63	161.0550	3,4,6	87	161.4150	3,4,7
16	160.3500	3,4	40	160.7100	3,4	64	161.0700	3,4,6	88	161.4300	3,4,7
17	160.3650	3,4	41	160.7250	3,4	65	161.0850	3,4,6	89	161.4450	3,4,7
18	160.3800	3,4	42	160.7400	3,4	66	161.1000	3,4,6	90	161.4600	3,4,7
19	160.3950	3,4	43	160.7550	3,4	67	161.1150	3,4,6	91	161.4750	3,4,7
20	160.4100	3,4,5	44	160.7700	3,4	68	161.1300	3,4,6	92	161.4900	3,4,7
21	160.4250	3,4,5	45	160.7850	3,4	69	161.1450	3,4,6	93	161.5050	3,4,7
22	160.4400	3,4,5	46	160.8000	3,4	70	161.1600	3,4,6	94	161.5200	3,4,7
23	160.4550	3,4,5	47	160.8150	3,4	71	161.1750	3,4,6	95	161.5350	3,4,7
24	160.4700	3,4,5	48	160.8300	3,4	72	161.1900	3,4,6	96	161.5500	3,4,7
25	160.4850	3,4,5	49	160.8450	3,4	73	161.2050	3,4,6	97	161.5650	3,4,7

Notes

(1) Canada Only

(3) This frequency may be used for Train end-to-end, Base station-to-train, or train-to-train communications. You may also hear data for remote control of locomotives on this frequency.

(4) This frequency can be used for tone or voice communications to indicat abnormal conditions of trackage and railroad rolling stock.

(5) In Puerto Rico and the Virgin Islands this frequency is shared with the Special Industtial Radio Service.

(6) In Puerto Rico and the Virgin Islands this frequency is shared with remote pickup broadcast stations.

(7) In Puerto Rico and the Virgin Islands this frequency in not used.

(8) This frequency if shared with the motor Carrier Radio Service.

(9) This frequency is used with low-power only.

(10) This frequency is used for the control of slave locomotives.

(11) This frequency is used for End-Of-Train monitoring.

USSN

UHF Rail Road Frequencies

452.3125	9	452.8625	9	457.4625	9
452.3250	8	452.8750	8	457.4750	8
452.3375	9	452.8875	9	457.4875	9
452.3625	9	452.9000		457.7625	9
452.3750	8	452.9125	9	457.7750	8
452.3875	9	452.9250	10	457.7875	9
452.4125	9	452.9375	9	457.8125	9
452.4250	8	452.9500	10	457.8250	8
452.4375	9	452.9625	9	457.8375	9
452.4625	9	457.3125	9	457.8625	9
452.4750	8	457.3250	8	457.8750	8
452.4875	9	457.3375	9	457.8875	9
452.7625	9	457.3625	9	457.9000	
452.7750	8	457.3750	8	457.9125	9
452.7875	9	457.3875	9	457.9250	10
452.8125	9	457.4125	9	457.9375	11
452.8250	8	457.4250	8	457.9500	10
452.8375	9	457.4375	9	457.9625	9

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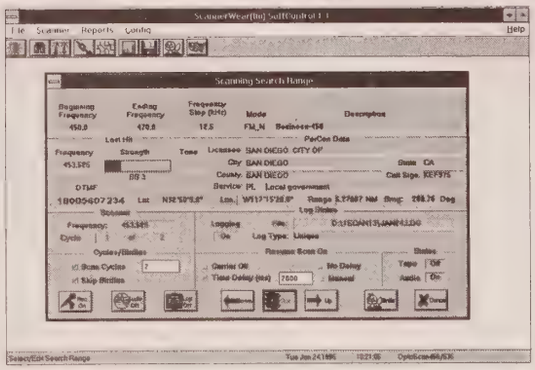

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TRANSPORTATION

by Roger West

East-Central Minnesota-Northwestern Wisconsin

BY AIR

MINNEAPOLIS/ST PAUL INTERNATIONAL AIRPORT, MINNEAPOLIS, MN.
(WOLD-CHAMBERLAND FIELD)

[133rd AIRLIFT WING of the MINNESOTA AIR NATIONAL GUARD; 934th AIRLIFT GROUP of the AIR FORCE RESERVE; NAVY REGION 16 READINESS COMMAND]

AIRFIELD OPERATIONS:

REMARKS- Attended continuously.
934th Airlift Group hours of operation 1300-2145 Monday-Friday, except holidays.
133rd Airlift Wing hours of operation 1300-2145, except holidays.

PILOT ALERTS!! ** Trees in vicinity of airport!!
** Flocks of birds on and in vicinity of airport.....national wildlife center located to the southwest of airport!!
** Noise abatement area!!
** If inbound for the Air National Guard ramp, contact base operations 20 minutes prior to landing on 311.200!!

RESTRICTIONS!! ** Training is prohibited!!

PTD		351.200
SFA/UNICOM	122.950	
ATIS	120.800	272.750
	135.350	
FSS	122.200	255.400
	122.300	
	122.550	
Appr	119.300	335.500
	126.950	
Dep	127.925	284.700
	124.700	357.400
Tower	123.950	257.600
	126.700	
Ground	121.900	348.600
Clearance	133.200	
133rd Operations ("Guard Ops")		311.200
133rd Command Post		240.150
934th Operations		351.200
934th Command Post ("Abstain")		252.100
Air Tactical		376.025
Plane-to-Plane	141.800	
	148.200	

GROUND OPERATIONS:

Maintenance		413.200
		413.300
	163.5125	
Fire Department/Crash Crews/ Trucks	163.5125	
Alert Pagers		413.450
Flightline Operations	149.265	
Medics	163.5125	
	163.5875	
Security	163.4875	
Commanders Net	164.300	
Aircraft Maintenance	165.1375	

INTERNATIONAL AIRPORT FIRE DEPARTMENT:
154.205 (This is also Chicago County's Fire Net.)

METROPOLITAN AIRPORT COMMISSION
462.7875
463.6125
463.6625

ST.PAUL DOWNTOWN HOLMAN FIELD AIRPORT, HELIPORT, and SEAPLANE BASE, ST.PAUL, MN.

[AVIATION UNITS of the MINNESOTA NATIONAL GUARD and MINNESOTA ARMY RESERVE]

REMARKS- Attended continuously.
Army Reserve hours of operation 1330-2200 Monday-Friday.
National Guard hours of operation 1400-2230 Monday-Friday, except holidays.

PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Deer on and in vicinity of airport!!
** Water fowl on and in vicinity of airport!!
** Flocks of birds on and in vicinity of airport and roosting and feeding along the river (Mississippi River) banks!!
** Heavy helicopter traffic on and in vicinity of airport!!
** The seaplane base is located to the North-East of runways along the Mississippi River, and some parts of the seaplane base are not visible from the tower and pilots are **required** to contact the tower on 119.900!!
** River traffic may be a hazard when using Runways 26 or 30!!
** South St.Paul Muni. Airport traffic at and below 1720' 3.5 nautical miles South-Southeast of airport!!

AWOS-3	118.350	
CTAF	119.100	
UNICOM	122.950	
ATIS	118.350	
Appr/Dep	121.200	357.400
Tower	121.700	257.800
	119.100	
Ground	121.700	
Army Reserve Operations	41.50fm	299.100
	139.200	
National Guard Operations	41.40fm	
	126.200	
Army Operations	165.500	

Continued

FLYING CLOUD AIRPORT, BETWEEN EDEN PRAIRIE & SHAKOPEE, MN.
[HOME OF THE WINGS OF FAME AVIATION MUSEUM]

REMARKS- Attended 1300-0400.
PILOT ALERTS!! ** Deer on and in vicinity of airport!!
** Waterfowl on and in vicinity of airport!!
** Noise abatement area!!

CTAF	118.100	
UNICOM	122.950	
ATIS	124.900	
Appr	125.000	284.700
Dep	125.000	357.400
Tower	118.100	125.200
Ground	121.700	
Clearance	121.700	

SOUTH ST.PAUL AIRPORT, SOUTH ST.PAUL, MN.
[RICHARD E. FLEMING FIELD]

REMARKS- Attended dawn-dusk.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Frequent helicopter operations over Mississippi River east of airport below 2,200' miles above sealevel!!

CTAF/UNICOM	122.800	
Appr/Dep	127.500	259.300
		363.800

CRYSTAL AIRPORT, CRYSTAL, MN.

REMARKS- Attended May-October Monday-Friday 1300-0300,
Saturdays and Sundays 1300-0100, November-April Monday-Friday 1300-0100, and Saturdays and Sundays 1300-2300.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Migratory waterfowl in vicinity of airport!!

CTAF	120.700	
UNICOM	122.950	
ATIS	125.700	
FSS	122.100	
Appr/Dep	126.500	335.500
Tower	120.700	
Ground	121.600	
Clearance	121.600	

ANOKA COUNTY-BLAINE AIRPORT, BLAINE, MN.
(JANES FIELD)

REMARKS- Attended 1300-0400.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Deer on and in vicinity of airport!!

CTAF/UNICOM	123.050	
FSS	122.100	
Appr/Dep	126.500	357.400
Clearance	121.300	

BENSON MUNI. AIRPORT, BENSON, MN.

REMARKS- Attended Monday-Saturday 1400-2300, and Sundays 1700-2300.

AWOS-3		239.000
CTAF/UNICOM	122.800	
Appr/Dep	133.400	
	125.500	

WIPLINE SEAPLANE BASE, INVER GROVE HEIGHTS, MN.

REMARKS- Attended continuously.
PILOT ALERTS!! ** **Caution** is required at all times @AIRPORTS = the river for floating debris!!
** River channel is marked by buoys!!

CTAF	122.900

SURSIDE SEAPLANE BASE, LINO LAKES, MN.

REMARKS- Attended May-October dawn-dusk, and is unattended
November-April!!
PILOT ALERTS!! ** Noise abatement area!!
** 500' tower 2 miles east right of departing path!!

CTAF	122.900

AIRLAKE AIRPORT, LAKEVILLE MN.

REMARKS- Attended 1400-2230.

AWOS-3	115.700	
CTAF/UNICOM	123.000	
FSS	115.700	
	112.100	
Appr/Dep	125.000	284.700

LAKE ELMO AIRPORT, LAKE ELMO, MN.

REMARKS- Attended 1400-dusk.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!

CTAF/UNICOM	122.800
Appr/Dep	121.200

FOREST LAKE AIRPORT, FOREST LAKE, MN.

REMARKS- Attended during daylight hours.
PILOT ALERTS!! ** Power lines and poles on and in vicinity of airport!!

CTAF/UNICOM	122.700

AMERY AIRPORT, AMERY, WI.

REMARKS- Attended 1430-2300 Monday-Friday.

CTAF/UNICOM	122.800
Appr/Dep	133.700

BARRON MUNI. AIRPORT, BARRON, WI.

REMARKS- Attended dawn-dusk.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** 10' high building in Southeast corner of Runway 27, 100' feet left of centerline!!

CTAF	122.900
FSS	122.300

BOYCEVILLE MUNI. AIRPORT, BOYCEVILLE, WI.

REMARKS- Unattended.

CTAF	122.800

CUMBERLAND MUNI. AIRPORT, CUMBERLAND, WI.

REMARKS- Attended Monday-Friday 1500-2300, and Saturdays
1500-2100.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!

CTAF/UNICOM	122.800
FSS	122.300
Appr/Dep	121.050

GRANTSBURG MUNI. AIRPORT, GRANTSBURG, WI.

REMARKS- Attended irregularly.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Deer on and in vicinity of airport!!
** Water fowl on and in vicinity of airport!!
** Water tower located 5060' Southwest of Runway 05, 1100' above sea lever, 182' above ground level!!

CTAF	122.900
FSS	122.100
Appr/Dep	134.550

SCORE FIELD, MENOMONIE, WI.

REMARKS- Unattended.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!

CTAF	122.700	

NEW RICHMOND MUNI. AIRPORT, NEW RICHMOND, WI.

REMARKS- Unattended.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Waterfowl on and in vicinity of airport!!
** Ultralight activity on and in vicinity of airport!!
** Aerobatic practice area located 2 nautical miles Northeast of airport!!

CTAF	122.900	
Appr/Dep	133.700	381.650

L.O. SIMENSTAD MUNI. AIRPORT, OSCEOLA, WI.

REMARKS- Attended November-May 1500-2300 and June-October 1430-dusk.
PILOT ALERTS!! ** Glider operations May thru November on and in vicinity of airport!!
** Balloon activity on and in vicinity of airport!!
** Parachute Jumping/Skydiving approximate 3 miles to the Southeast!!

CTAF	122.900	
Appr/Dep	121.050	397.900

RICE LAKE MUNI. AIRPORT, RICE LAKE, WI.

REMARKS- Attended 1200-0300.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
** Deer occasionally on and in vicinity of airport!!

CTAF/UNICOM	122.700
FSS	122.300
Appr/Dep	125.300

RIVER FALLS AIRPORT, RIVER FALLS, WI.

REMARKS- Unattended.
PILOT ALERTS!! ** Tall trees in vicinity of airport!!
RESTRICTIONS!! ** Airport **is closed** winter months and in Spring when ground is soft!!
** Ultralight activity on and in vicinity of airport!!

CTAF	122.900

BALDWIN AIRPORT, BALDWIN, WI.

REMARKS!! ** I have no listings for this airport, which leads me to belive that it is a private airport, with probably a grass strip for a runway.
PILOT ALERTS!! ** Parachute Jumping/Skydiving in vicinity of airport!!
The unicom that they may be using is 122.700, 122.800, or 122.900!
Editors note: If anyone knows the frequencies being used at Baldwin Airport, please write and let me know which ones! My address is: Roger West, P O Box 291, Amery, WI. 54001-0291 or write to me at this address if you have any questions or other information. Roger

BY LAND

RAILROADS:

BURLINGTON NORTHERN

Road	161.100
	161.160
Administration	161.250
Hump (Northtown)	160.365
	160.335
Yard	161.500
Signals	160.500
Shop	160.650
Car Operations	160.590
PBX	160.425
	160.665
	161.130

CHICAGO & NORTH WESTERN

Road	160.890
	161.040
	161.175
Yard	161.220
	160.575
Police	160.485

DAKOTA RAIL

Repeater	161.055
	160.275

MINNESOTA COMMERCIAL

Road	160.560
Yard	160.740

DAKOTA MINNESOTA & EASTERN

Road	160.395
Yard	160.965

MINNESOTA VALLEY

Road	161.625

MINNESOTA TRANSPORTATION MUSEUM

Road	161.355
	161.295

MINNESOTA ZEPHYR
(a dinner train at Stillwater, MN. It rides the rails along the beautiful St.Croix River Valley, which is a National Scenic riverway.)
160.290

SOO LINE

Road	161.370
	161.520
	161.085
	160.770
PBX	160.260
	161.400
Yard	160.680
	161.430
Car Operations	160.230
Roundhouse	160.530
Administration	161.325
Police	160.620
	161.205
	160.440

WISCONSIN CENTRAL

Yard	160.260
Road	160.785
	161.295

OSCEOLA AND ST.CROIX VALLEY	
Road	161.295
	161.355
TWIN CITIES AND WESTERN	
Yard	160.875
Road	161.460
BUSES:	
METROPOLITAN TRANSIT	
COMMISSION	854.3625
	854.5375
NORTH CENTRAL SPEEDWAY,	
ANOKA, MN.	151.745
MINNESOTA BOAT CLUB,	
ST.PAUL, MN.	154.570
	154.600
GREYHOUND BUS LINES,	
AT MINNEAPOLIS, MN.	463.675
TAXI SERVICES:	
AIRPORT AIRLINE,	
MLPS, MN.	152.420
	157.680
BLUE AND WHITE,	
MLPS, MN.	152.330
	157.590
	152.345
	157.605
SUBURBAN CAB,	
BLOOMINGTON, MN.	157.545
	452.050
	452.300
	462.300
YELLOW CAB	
	452.100
	452.200
	452.500
RICE LAKE CAB, WI.	461.550

BY SEA

HUDSON, WI.		
Chicago & Northwestern RR	Port Operations	156.700
County of St.Croix	Recreational	156.425
STILLWATER, MN.		
State of Minnesota	Port Operations	156.700

ATTENTION ALL PHOTOGRAPHY BUFFS

I am looking for photographs having to do with the subject of transportation. They can be of any size and can be Black & White or Color. If you would like to see one of your photos published in U.S.Scanner News, send them to me at the following address:

Roger West
USSN Transportation Editor
P O Box 291
Amery, WI. 54001-0291

I will be sure to give you credit for your photograph, if published. I am looking forward to getting your photographs and your frequencies as to what you are monitoring transportation wise!

I recently received the following letter form the International Council of Air Shows Foundation in Jackson, Michigan:

Women's Aviation Scholarship Fund Established in Downed Pilot'sy Memory

The ICAS Foundation today announced establishment of the Jan Jones Memorial Scholarship Fund to assist women in pursuit of aviation careers. It was instituted by John Rux, widower of air show and competition pilot Jan Jones, to help young women overcome some of the financial barriers associated with flight programs.

"Jan wanted to show young women that they can do things beyond their wildest imaginations," Rux said. "This scholarship is to help women get into aviation and follow their dreams.

"Air shows and acrobatic competition are one avenue. Instruction is another. Instructor or performers like Montaine Mallet of the French Connection Airshow, performers and competitors like three-time National Acrobatic Champion Patty Wagstaff and airline and air show pilots like Joann Osterud and Julie Clark are prime examples of the great career opportunities available to women within the industry."

"Jones, 42, of Red Thunder Air Shows, died May 9, 1995 of injuries sustained in an accident on May 8 in Wellington, Ohio. En route to a Philadelphia press event and then to a New York air show, Jones was apparently experiencing engine problems when she attempted a precautionary landing at the Bottsford Air Strip near Cleveland. The cause of the accident is still being investigated by the National Transportation Safety Board.

"Jan had a bright future in air shows," said Gary McMahon, chairman of the Foundation's Board of Directors. "We are honored that her husband decided to establish a scholarship fund in her memory through the ICAS Foundation."

"Tax deductible contributions may be sent to the Jan Jones Memorial Scholarship Fund, ICAS Foundation, 1931 Horton Road Ste 5, Jackson, MI. 49203

I received another letter from Jack McCartan of of Newark, Delaware. He sent me a newspaper clipping from the Wilmington News Journal that said that the spokesman for the Delaware River and Bay Authority announced that they will be spending $15 million dollars for a very costly overhaul of the 20-year-old M.V. Twin Capes Ferry. This is going to put a heavy strain on the other four ferries, as they will have

Twin Capes Ferry. This is going to put a heavy strain on the other four ferries, as they will have to take up the slack that the M.V. Twin Capes Ferry will leave. Up to 84 bay crossings could be affected by the delay during the line's busy summer. The Delaware River and Bay Authority also operates the Delaware Memorial Bridge.

Thanks for the input, Jack! If any of the readers see an article that may be of interest to the readers, please send it in to me.

In another letter from Jack were several newspaper articles from the Wilmington News Journal, Wilmington, Delaware.

The first article is about a safety check by the state fish and wildlife police at Indian River Bay. The fish and wildlife police, the U.S. Coast Guard and Governor Carper spent the day stopping boaters to do safety checks. The article went on to say that state law requires a life jacket for everyone on board. There are 40,000 boats registered in the State of Delaware, and on any weekend in the summer, there can be 5,000 on the inland bays. Delaware law also requires that children 12 and younger wear life jackets while on board a boat, and all boats must have enough life jackets for everyone on board.

Delaware had one boating fatality last year and none in the previous two years, which speaks well of the boat safety checks.

The article went on to state that a 1993 federal study indicates that 85% of the people who drown in recreational boating accidents may have survived if they had been wearing life jackets. Jack monitored the safety check on 156.800 MHz.

The other article Jack sent stated that the House of Representatives has passed the Coast Guard's budget and with it **closed** the station at Roosevelt Inlet near Lewes and reduced service at Indian River and on the upper Chesapeake Bay. The downsizing by the Coast Guard effects 41 small stations across the country. It is a part of a national "releveling" of Coast Guard operations ordered by the commandant in light of a 1990 Government Accounting Office review.

Under the House bill, Coast Guard personnel at Roosevelt Inlet were transferred to Ocean City, Maryland. The Indian River and Still Pond, Maryland stations will operate during summer months only.

Faster boats and aircraft allow quicker response in emergencies (156.800) and wider patrols from more distant bases. The modifications will save more than $6 Million and come at a time when all federal agencies are looking for belt-tighting solutions.

73's, Roger
USSN

CHEEK

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SPACE COMMUNICATIONS

By Donald E. Dickerson, N9CUE

Single Channel Per Carrier

You are probably a sophisticated consumer of high quality, high-tech entertainment equipment. If you weren't, you would not be here, would you. That's right, your scanner, computer, receivers and other pieces of communications gear keep you one step ahead of the crowd. Many of you know what is happening in your community before your local news stations pick it up. In fact, some of you may supply news tips to local TV stations (at some personal risk I might add!).

But some of you may find that your ritual of sitting in front of your scanner is somewhat less than satisfying, much like your first two marriages! In both situations the problem is the same. You need a little variety in your life, a little spice. And I have just the ticket for those of you who have, in addition to the other equipment listed above, a TVRO (TV Receive Only) system - a satellite dish. In fact, you may not be a scanner owner, as unlikely as that is, but if you own the TVRO set up you may want one.

You may not be aware of the fact that you can use a scanner in conjunction with your TVRO receiver to tune a completely different type service than you are used to hearing on your scanner.

The same can be said of your shortwave receiver if you have one of those. And even if you don't have either, you may be able to tune into a wide variety of domestic and international radio broadcast using your TVRO system, effectively making it a shortwave receiver.

Let's start with the simple stuff. If you have an analog TVRO receiver, one you tune manually, or if you can locate an old one somewhere, you are ready to go. For every TV video signal on a satellite there is an audio sound track that accompanies it, often at 5.8 or 6.2 MHz subcarriers on the transponder. New IRD digital receivers automatically tune to the proper audio for the TV program. There is plenty of room left on most transponders for a few more audio programs. So the ground stations will load the transponder with other domestic and international programming. These signals are called audio subcarriers. Some of the newer IRD receivers are making it possible to tune the subcarriers again. If you have one that won't, you can add a stereo processor to the receiver and then tune the subcarriers manually with the processor controls.

But what about my scanner? Yes, yes, we're coming to that. Special audio feeds for CNN, foreign broadcasters, local TV news and every other specialized type programming you can imagine can also be sent through the satellites for nation wide distribution.

Instead of attaching the additional programs to a carrier of a TV program that is going to be sent through the transponder (which is how it is done with subcarriers), many carriers simply use that transponder for nothing but these specialized programs. This is called Single Channel Per Carrier or SCPC and as you can imagine there can be many programs on a single transponder that is dedicated to SCPC programming. And this is often the case.

How do you find a transponder that is dedicated to SCPC programming? Well, you simply tune to one of those seemingly blank channels on your TVRO system. The audio signals hide out there.

This is where your scanner comes in. That is, if it allows you to tune continuously between 950 to 1450 MHz. If your scanner won't do that, don't leave yet! There is another method we will look at. The best scanner for this would be a quality receiver like the ICOM R7100 or R1000; something with a selectable wide- and narrowband FM switch. Then you simply put a coax switch after the downconverter of your TVRO system, which just happens to operate on the frequency band of 950-1450 MHz. You then MUST run the coax to a THROUGH TAP or a VOLTAGE BLOCK FILTER to remove the voltage from the cable. Then connect the coax to the antenna input of your scanner and tune between 950 and 1450 to find the SCPC signals. IF YOU SHOULD FAIL TO REMOVE THE VOLTAGE FROM YOUR TVRO COAX LINE IN THIS MANNER YOU WILL DESTROY YOUR RECEIVER. As you know, most TVRO systems have voltage on the coax to power the block downconverter and other systems. This must be removed first. A filter is simple to build, or you can buy one. We will get to that later.

Some TVRO receivers use a downconverter to take the GHz signals from the dish antenna down to 70 MHz, instead of the 950 to 1450 MHz range. This 70 MHz signal can be picked off the back of some receivers. On the back of the receiver you will find a 70 MHz IF connector or Loop or a Broadband Output. This is where you can pull signals off the satellites that are running between 50 and 88 MHz. AGAIN make sure there is no voltage on the line before you try to connect the output to your scanner antenna jack.

Now we switch back to the subject of audio subcarriers. This is where your shortwave receiver comes in. You remember that on a satellite transponder the bottom half of the transponder frequency space is used to transmit the video. It is a signal that is about 4 MHz wide. Above that, typically at 5.8 or 6.2 MHz (above the lowest end of the transponder), you will find the program audio. Additional subcarriers can be added as room permits. Imagine that you decide to use the bottom half of the transponder for subcarriers instead of video. Instead of Single Channel Per Carrier, as in SCPC, you have Multiple Channels Per Carrier (MCPC). All of the signals being attached to a single wideband carrier. This is just what is done with FM/FM, as it is known. For this you need a quality HF shortwave receiver that is capable of tuning

FM between 100 KHz and 10 MHz. Here you would take the signal off of the TVRO receivers baseband output (unclamped) AND AGAIN make sure there is no DC voltage on the line before you connect it to your receiver.

Since you will want to know what you will be hearing on these special service channels, especially after going to all the trouble to connect all that equipment, I have included a sample of the shortwave services and domestic services that are out there. This information is from a book by Thomas Harrington called **SATELLITE RADIO**. It comes complete with a Radio guide which is a channel-by-channel, frequency-by-frequency guide as to what is on each transponder on each satellite in orbit. If some of this technical talk seems a bit much for an armchair adventurer like you (and ME!), that's all the more reason to get a copy of Satellite Radio. It will take you step by step through each of the system configurations we touched on. The book has plenty of simple, easy-to-read instructions and diagrams. Better yet, Thomas Harrington, a very well known name in TVRO and data electronics, tells you about simple, easy-to-add pieces of equipment that will do all the work for you if you want to search out those secret signals on the satellites.

So there is something exotic and different you can hear on your scanner, shortwave receiver, FM stereo or your TVRO dish. There's as much adventure there as your heart and wallet can stand. So what are you waiting for? Thomas Harrington's book Satellite Radio can be obtained from Universal Electronics, Inc., 4555 Groves Rd. Suite 12, Columbus, Ohio, 43232. FAX (614) 866-1201, Phone (614) 866-4605. Tell them we sent you.

USSN

GALAXY 4 (G4) C-Band - 99 degrees W

TR-3	Minnesota Public Radio, Classical Music, 1:1,N	57.30
	*West Virginia Metro News, ABC News	57.40
	Classical Music. 1:1,W	57.60
	KNOW-FM Minn-St.Paul, Nattional Public Radio Affiliate	57.90
	West Virginia Mountaineers Sports Network	58.00
	BBC World Service, 24 Hours.	58.20
	BBC, Secondary, 24 Hours	58.40
	Texas Tech University Sports Network	61.00
	Talk, Dallas Cowboys, WBAT, Ruch Limbaugh(1:00-4:00)	61.30
	KILS-Dallas Talk Radio Network, Paul Harvey, Texas State Network	61.50
	KLRD-AM, Dallas Mavericks, CBS News, Texas State Network	61.70
	New Orleans Saints Network, Capital Sports Network, Auto Racing, Paul Harvey	61.90
	So. Carolina Network/S.C. State Sports.	
	Performance Racing NW., Capital Sports and Racing, ABC News	62.00
	Houston Rockets, KLRD-Dallas/KTRH-AM, Sports, CBS News, MLB.	
	Oilers, Ross Perot, Sunday, 8:00 p.m. EST.(Scanner 1405.06 MHz)	62.20
	Radio Talking Book Network-Minnesota Reading for Sight Impaired, Browns Network	62.50
	Oklahoma Sooners	62.80
	KPRC-AM Houston, Nes, Talk, Mutual, Astros Flagship, University of Houston Sports, G.G. Liddy, Bruce Williams	62.90
	Spanish Information Service, Texas State Language News	63.10
	Tennessee Radio Network, ABC News	63.30
	Georgia Network News/Georgia Tech Sports, Capital Sports and Racing, GA Bulldaogs, Bruce Williams	63.60
	Southern News Network, CNN Radio, WCNN, Atlanta Sports By-Line	63.80
	University of Louisville Sports, WHAS	64.00
	ABC News Feeds, Kentucky Network, Sports, Talk	64.20
	American Public Radio/Monitor Radio	64.50
	Florida's Public Radio Network	64.90
	Kentucky Radio Network (Alt.),ABC News, WHAS, Paul Harvey, Ruch Limbaugh	65.30
	National Public Radio/Occasional Audio	65.60
	American Public Radio/Occasional Audio, Master Clock	66.00/67.40
	American Public Radio/Monitor Radio Network	66.00
	Kentucky Radio Network (Primary), Sports, Host Communications	66.40
	Florida's Radio Network, Car Clinic	66.70
	Texas State News Network	66.90
	Minnesota Public Radio, Classical Music, Various Programming 67.00	
	South Carolina Network/University of S.C. Sports	67.10
	American Public Radio/Marketplace, Music	67.40
	National Public Radio, Jazz, Blues, Swing	67.70/68.30
	Minnesota Public Radio	68.00
	National Public Radio, Class, Various Programming	68.30
	Network News Feeds, Various Programming	68.60
	Midwest Radio Networks, Sports, AP News	68.90
	Occasional Audio, Tones	70.80
	KSJV, Fresno, CA, Spanish Ethnic	71.60/73.80
	NPR CH-6, Music Services	71.90
	Occasional Audio, Music, NPR, DACS	72.20
	National Public Radio CH-5, American Stock Exchange	72.50
	National Public Radio CH-4, Performing & Cultural Arts, U.S. Naval Master Clock	72.80
	Classical Music, News	73.10
	Spanish Information Network, Hispanic Music	73.80
	Occasional Audio, Sports, News, Classical Music, NPR	74.00
	National Public Radio, CH-3, Classical Music 1:1	74.20
	U.S. Naval Observatory Master Clock, National Public Radio, Classical Music	74.60
	National Public Radio News Service, CH-2	74.90
	Houston Cougars Football, Reading Service	75.00
	National Public Radio News Network	75.30
	Occasional Audio, NCAA Sports, KOA-2nd, Colorado Rockies, Denver Broncos	75.70
	Occasional Audio, Indianapolis Colts (N/C), Sports	76.00
	Minnesota News Network, Channel 1, Timberwolves, Minnesota Twins	76.30

GALAXY 4 (G4) C-Band - 99 degrees W

TR-16	Data Channel	5.80
TR-19	WCBS-AM, New York, News Radio	7.40
TR-23	Yesterday, USA	5.78
	Inspirational Business Music	7.73

GALAXY 4 (G4) Ku-Band - 99 degrees W

TR-13	Russian Radio, Programming in Russian 7 p.m.-11:00 p.m	6.20
TR-23	Mormon Tabernacle Church-Mormon Choir, Sun.11:30 a.m. (No Video)6.20/6.80	

TELSTAR 401 (T1) C-Band - 97 degrees W

TR-3	"Hard Copy", Spanish Version	5.80
TR-4	*Home Page Radio, Computer Show - Saturday, 5 p.m.	5.80

TELSTAR 401 (T1) Ku-Band - 97 degrees W

TR-14(U)	Georgia Public TV, Secondary Audio	5.04/5.22
	Peach State Public Radio, Classical Music	5.40/5.58
	GP-TV, News and Reading Service	5.76
TR-14(L)	Peach State, Secondary Audio Channel	5.04/5.22

GALAXY 3 (G3) C-Band - 93.5 degrees

TR-2	Liberty Sports-Audio, NFL, Sports WHEN Scrambled Video	6.20/6.80
TR-5	*BBC(British Broadcasting Company), 9 a.m.(English)	6.20
	*Reuters - BBC, 2:15 p.m. daily	6.20
	*BBC(British Broadcasting Company), 9 a.m.(Japanese)	6.80
TR-9	Antenna Radio (Greek) Music	5.80
TR-11	* WIB, Main Street Radio Network, WINB	6.20
	Various Programs, Music	6.20
	IBN Network, Religious	7.40
	Earl Jackson Talk Show, WIFI-AM, Oldies Music	7.56
TR-13	The Wave, Easy Listening Music	5.80
TR-17	Data	5.50
	Planet B/B Service, Data	7.25
	Earl Jackson, Occasional Audio	7.50
	Data Channel	7.62

GALAXY 7 (G7) C-Band - 91 degrees W

TR-2	Data Channel	5.80
	Audio for CBS, Scrambled Video Signal	6.20/6.80
TR-4	Audio for FX Service	5.80/6.80
	Occasional Audio	6.20
TR-5	Occasional Audio	6.20
TR-10	Radio Maria (Italian)	5.80
	Radio Dubai (Arabic)	7.40

TECHNICAL STUFF

by Steve Donnell, WA1YKL

JIM-51 Preamp

The JIM M-51 is a design update of the older M-75 preamp, both of which are a great approach to VHF/UHF wide-band preamps for use with scanners. One big improvement incorporated in the M-51 is it's size, only about half that of the M-75. It measures: 3" x 1.5" x .7". When I first saw an M-51, because of it's tiny size, I wasn't sure if it could be used with any internal batteries. But I soon realized that it used two AAA's for portable operation. Current consumption was measured at only 50 ma at maximum gain setting, which should easily provide eight to ten hours of continuous use with alkaline batteries. There is also a subminiature coaxial plug on the side for external 12 volt-DC power.

A slide switch on the front selects different operating ranges: Position A, Highpass mode, amplifies only signals above 225 MHz. (See gain plot 1.) Position B, Bandpass mode, amplifies only signals within the 100 to 180 MHz range. (See gain plot 2.) And in position C, which is an "all pass," the unit amplifies all signals across it's operating range of 24 MHz to 1 GHz. (See plot 3.) An additional switch position that switches DC power OFF, also bypasses the preamp, coupling the signal straight through. This obviates the need to disconnect the preamp from the antenna line when it's not in use. Maximum "thru-loss" of signals when in the Off/Bypass mode was only about 3 dB, above 800 MHz.

Signal gain of the M-51 is rated at 20 dB, but we comfirmed only about 17 dB. Still pretty good, but about three to four dB less than what we saw in our earlier tests on the M-75. In checking the M-51 at minimum gain, I noticed that 800 MHz signals were still being amplified by 5 dB or so. Only signals below 200 MHz were being attenuated by 10 dB (see gain plot 4).

One improvement in the M-51 is a somewhat sharper filter skirt in the Bandpass mode. In the M-75 we noticed that in the Bandpass mode 800 MHz signals would creep around the filter, permitting 10 dB of gain for signals in the 800 to 950 MHz area. While the M-75 has better rejection of 400 to 500 MHz signals in the Bandpass mode, the M-51 does at least reject all out-of-band signals to unity gain (0 dB), or better.

One extra ability I noticed in the M-51 is that it operates very effectively as an HF preamp down to a frequency of 8 MHz or less. This can be a big help for those with scanners such as the AR-8000. Unfortunately, I have not measured the actual signal gain of the M-51 below 30 MHz. But in checking it's performance with my own AR-8000 while listening to shortwave stations on the 31 and 25 Meter bands, it seems to have about 10 dB or so of signal gain. In checking the HF performance of the M-75, I found the received signals were quite noisy.

VHF/UHF performance of the M-51 is quite similar to that of the M-75. The Bandpass and Highpass filters do an excellent job of reducing noise and interference pick-up by the preamp. One type of situation where you would not want to use the M-51, or any other type of preamp, is where there is a large amount of RF noise being generated. If I tried using the M-51 anywhere within a few feet of my PC, anything I tried to pick up on a frequency below 200 MHz or so would be drowned in noise. I noticed this same condition some years back when experimenting with several types of "active antennas." Due the broadband nature of the preamps in these antennas the test receiver was seeing an abnormally high noise floor caused by RFI being generated by an old digital multimeter on my test bench. I noticed a similar condition while testing the M-51 and it bears particular attention when using the M-51 on an outside antenna, with the unit set to it's broadband (switch position C) setting. As I increased the gain to near maximum, the noise level on the signal I was receiving would increase significantly as well. The kicker is that this noise level varied, depending on which one of three different antennas I used. One was a discone, another was a multiband scanner antenna and the third was an Amateur triband (6 Meter, 2 Meter, and 440 MHz) antenna. All were at about the same elevation. The worst for noise pick-up with the preamp was the discone. The one with the least noise susceptibility was the Ham antenna. The multiband scanner antenna was significantly better than the discone but not quite as good as the Ham antenna. What this seems to demonstrate is how a tuned antenna contributes to "filtering out" various types of out-of-band interference sources, particularly Broadcast transmitters (TV and FM). The discone antenna has a very uniform response from 75 MHz to over 1 GHz. The Ham antenna on the other hand, has a very "segmented" tuning response over very defined bandspreads. Does this mean that discone antennas can cause receiver noise or intermod pick up? NO! Discones are good antennas and needed for use with today's wide-frequency-coverage scanners. It does seem to indicate the potential for something I have suspected for a long time and seen many other examples of: that you need to be careful in using any device (preamp OR antenna) with a broad frequency response in any "RF dense" environment. Although the M-51 can be attached to a cable from a large rooftop antenna, I would say the M-51 is really best suited for use while trying to achieve some extra gain from a typical rubber duck or short whip antenna.

I performed these tests using several different signals: An ATIS transmitter at a local airport, a couple of NOAA channels and a UHF telemetry beacon. The test receivers were my AR-8000 and BC-2500. It was interesting to note

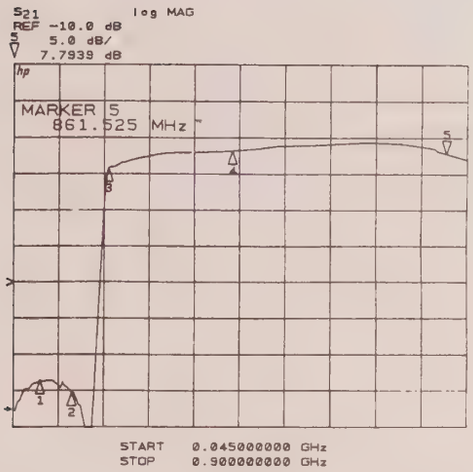
that in listening to the UHF frequency, within the noise I heard the very noticeable signature of some TV video sync buzz. Use of the M-51's Bandpass and Highpass filters eliminates most of these problems.

The Jim M-51 is available from Electronic Equipment Bank for $99.95.

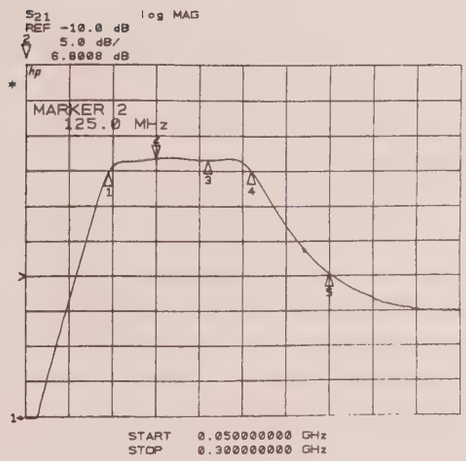
Frequency/gain plots defined

Frequency markers all plots; marker 1 = 97MHz, marker 2 = 125MHz, marker 3 = 225MHz, marker 4 = 460MHz, marker 5 = 860MHz. Horizontal graticules are for a 5 dB/ scale. Small arrow sign along the far left edge of the plots indicates the 0 dB gain reference line.

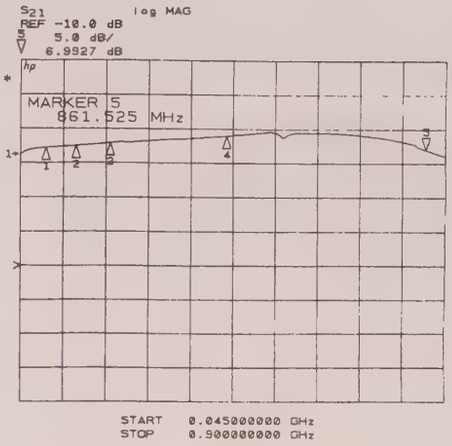
USSN



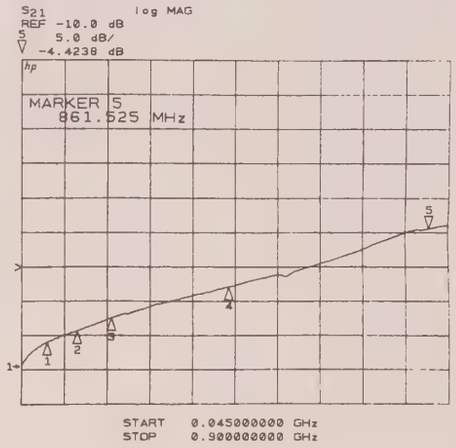
Plot 1. Switch position A, Highpass mode



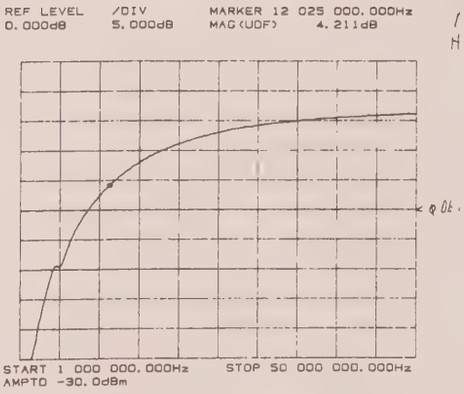
Plot 2. Switch position B, Bandpass mode



Plot 3. Switch position C, all-pass mode



Plot 4. Switch position all-pass mode, w/minimum RF gain setting



Plot 5. HF gain performance.

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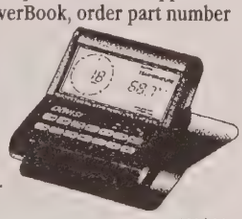

The Weather Monitor II (7440) comes complete with anemometer with 40 feet of cable, external temperature sensor with 25 feet of cable, junction box with 8 feet of cable, AC-power adapter, detailed instruction booklet and one year limited factory warranty.

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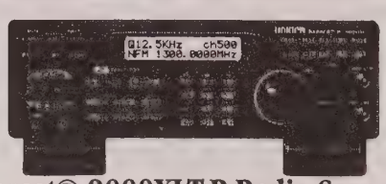
Davis Rain Gauge Stand-alone 0.01" **7520-R** $79.95
External Temperature/Humidity Sensor **7859-R** $99.95
Davis Anemometer Mast Mount **7890-R** $15.95
Weatherlink Software for IBM PC-Version 3.0 **7862-R** $139.95
Weatherlink Software for Apple-Version 3.0 **7866-R** $139.95
4-Conductor 40' (12.2 m) extension cable **7876-R** $17.95
6-Conductor 40' (12.2 m) extension cable **7878-R** $21.95
8-Conductor 25' (7.6 m) junction box cable **7880-R** $14.95
8-Conductor 50' (15.2 m) junction box cable **7881-R** $24.95
8-Conductor 100' (30.5 m) junction box cable **7882-R** $44.95
Modem Adaptor 25-Rin for communications port **7870-R** $9.95
Car/Boat/RV Lighter Power Cord **7873-R** $9.95
2400 baud modem for Weatherlink **MEXT-R** $39.95
Talking weather card - Call 313-994-9000 for demo **IT1-R** $474.95
Weatherlink language disks: Française, Deutsche, Italiana, Española **7863-R** $24.95
Barometer, Indoor Hygrometer & Thermometer, Clock/Calendar **BA888-R** . $99.95
Indoor-Outdoor Thermometer/Barometer & Hygrometer by OSI **BA213-R** .. $79.95
Thermometer with transparent calender & clock display by OSI **TC188-R** .. $19.95
Thermometer with AM/FM clock radio by Oregon Scientific **CR388-R** $39.95
Indoor/Outdoor Thermometer with Jumbo Display by OSI **JB880EX-R** $24.95



Bearcat® 9000XLT-R Radio Scanner

Mfg. suggested list price $769.95/**CE Special $374.95**
500 Channels • 20 banks • Alpha numeric display
Turbo Scan • VFO Control • 10 Priority channels
Auto Store • Auto Recording • Reception counter
Frequency step resolution 5, 12.5 & 25 KHz.
Size: 10-1/2" Wide x 7-1/2" Deep x 3-3/8" High
Frequency Coverage:
25.000-549.995 MHz., 760.000-823.995 MHz., 849.0125-868.995 MHz., 894.0125-1,300.000 MHz.

The Bearcat 9000XLT gives you pure scanning satisfaction with amazing features like TurboSearch™ to search VHF channels at 300 steps per second. This base and mobile scanner is ideal for surveillance professionals because it has a selectable attenuator to help eliminate annoying intermodulation from adjacent frequencies in highly populated areas and selectable AM, Wide FM and Narrow FM modes that allow you to change the default receiving mode of the BC9000XLT. Other features include ***Auto Store*** - Automatically stores all active frequencies within the specified bank(s). ***Auto Recording*** - This feature lets you record channel activity from the scanner onto a tape recorder. **Hi-Cut filter** to help eliminate unwanted static noise. You can even get an optional ***CTCSS Tone Board*** (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning enjoyment, order the following optional accessories: **PS001** Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter $14.95; **PS002** DC power cord - enables permanent operation from your vehicle's fuse box $14.95; **MB001** Mobile mounting bracket $14.95; **BC005** CTCSS Tone Board $54.95; **EX711** External speaker with mounting bracket & 10 feet of cable with plug attached $19.95. The BC9000XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden.

CB/GMRS Radios

The Maxon GMRS 210+3 transceiver is a PLL synthesized 10 channel radio on General Mobile Radio Service frequencies. It's the ideal radio for storm chasing activities. Two repeater channels are programmable and one channel (462.675 MHz.) is set aside for emergency and safety communications. The seven remaining interstitial frequencies 462.5625, 462.5875, 462.6125, 462.6375, 462.6625, 462.6875 & 462.7125 MHz are all-purpose GMRS radio channels. 2 watts of RF power for exceptional transmitting range. Up to 5 watts when used with the supplied 12 volt vehicular DC power cord. CTCSS built-in. Includes 450mAh Ni-cad rechargeable battery pack, AC/DC wall battery charger, owner's manual, FCC license application, belt clip, antenna. Call 1-800-USA-SCAN to order.

Maxon GMRS210+3-R GMRS transceiver $199.95
WTA6GA-R Alkaline battery case - requires 6 AA batteries $19.95
WTA6GN2-R 600 mAh rechargeable ni-cad battery for 210+3 $39.95
WTA8GA-R Carrying case for Maxon GMRS210+3 ..... $29.95
WTA10G-R Speaker/microphone for Maxon GMRS210+3 ..... $39.95
WTA13G-R Push-to-talk mini-VOX headset for GMRS210+3 ... $79.95
WTA14-R Antenna adaptor/screw-in male to BNC connector . $14.95
ANT4GM-R 1/4 wave UHF magnetic mount mobile antenna .. $29.95
Cobra 2010GTLWX-R SSB base w/weather alert$379.95
Cobra 148FGTL-R CB with frequency counter ... $209.95
Cobra 29LTDWX-R CB/weather alert $114.95
Cobra HH40-R CB 40 ch. Handheld $99.95
Ranger RCI2950-R 25 watt 10 meter $239.95
Uniden GMR100-R GMRS Handheld $144.95
Uniden WASHINGTON-R SSB CB Base $199.95
Uniden GRANTXL-R SSB CB Mobile $139.95
Uniden PRO538W-R CB & Weather $59.95

VHF Transceiver

RELM® WHS150-R Transceiver/SPECIAL
Mfg. suggested list price $481.67/**CE price $299.95**

Police and fire departments depend on the RELM WHS150 transceiver for direct two-way communications with their police, fire department, civil defense agency or ham radio repeater. The WHS150 is our most popular programmable five watt, 16 channel handheld transceiver that has built-in CTCSS, which may be programmed for any 39 standard EIA tones. Frequency range 148.000 to 174.000 MHz. Will also work 144.000-148.000 with slightly reduced performance. The full function, DTMF compatible keypad also allows for DTMF Encode/Decode and programmable ANI. Weighing only 15.5 oz., it features dealer programmable synthesized frequencies either simplex or half duplex in both 5.0 and 6.25 KHz. increments. Other features include scan list, priority channel, selectable scan delay, selectable 5 watt/1 watt power levels, liquid crystal display, time-out timer and much more. When you order the WHS150 from Communications Electronics Inc., you'll get a complete package deal including antenna, battery, belt clip and user operating instructions. Other accessories are available. A leather carrying case with swivel belt loop part **#LCWHS** is $49.95; rapid charge battery charger, part **#BCWHS** is $69.95; speaker/microphone, part **#SMWHS** is $54.95; extra ni-cad battery pack, part **#BP007** is $59.95. The radio technician maintaining your radio system must order programming instructions part **#PI150** for $18.00 to activate this radio. FCC license required for United States operation.

Other neat stuff

WX70-R weather radio with National Weather Service storm alert $39.95
WB-R USA Today The Weather Book, Guide to USA weather by Jack Williams$15.95
PSUN-R Partly Sunny, Weather Junkie's Guide to Weather by Alan Fields $11.95
Soundtronic AC101-R digital portable shortwave – 20 memory $39.95
Grundig Satellit 700-R digital portable shortwave with 512 memory $459.95
Grundig Yacht Boy 400-R digital portable shortwave - 40 memory $179.95
Grundig Yacht Boy 230-R portable shortwave receiver $109.95
Sangean ATS800-R portable 20 memory shortwave receiver $69.95
Sangean ATS803A-R portable shortwave w/AC adapter – 9 memory $129.95
Sangean ATS808-R portable 45 memory shortwave receiver $149.95
Uniden EXP9200-R 900 MHz. 1 or 2 line spread spectrum cordless phone . $289.95
Uniden EXP9100-R 900 MHz. 1 line cordless spread spectrum telephone ... $229.95
Bogen FR3110-R Digital FAX Friday Fax-on-Demand & answering system ... $399.95
Bogen FR3020-R memory module for Fax Friday/up to 36 minutes $99.95
Bogen FR2000-R Digital two-line voice mail & answering machine $279.95
Bogen FR0018-R memory module, doubles recording time to 36 minutes $79.95
FANS P161P-R 60 name/number caller ID, unwanted call blocker, paging .. $149.95
SNI ID200-R Bouncer name/number caller ID, call reject, forward $89.95
ICOM GP22-R handheld global positioning system (GPS) $494.95
RELM WHS150-R VHF handheld 5 watt, 16 channel transceiver $299.95
RELM RH256NB-R VHF 25 watt, 16 channel synthesized transceiver $289.95
Ranger RCI2950-R 25 watt 10 meter ham radio transceiver $239.95
Cobra RDL712SW-R Safety Alert & Super Wideband Laser/Radar receiver .. $159.95
Uniden LRD9900SW-R Super Wideband Laser/Radar receiver $139.95
ANTK-R VHF scanner/VHF transmitting antenna PL259 connector $29.95
ANTMMBNC-R magnet mount scanner antenna w/ BNC connector $29.95
ANTMMMOT-R magnet mount scan antenna w/Motorola plug $29.95
ANTMMPL-R magnet mount scan antenna with PL259 connector $29.95
ANTSGBNC-R glass mount scanner antenna with BNC connector $29.95
ANTSGMOT-R glass mount scanner antenna with Motorola jack $29.95

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BEGINNER'S CORNER

by Michael Martin

Antenna Spotting

You're driving down the road and you get behind a police car, a fire truck on any other type of vehicle with a radio antenna on it, and wonder, "what frequency are they on?" Well, let's see if we can find a way to narrow down the frequency.

With the exception of well-disguised undercover cars, almost every car with a 2-way radio on board has to have an antenna to transmit and receive with. There are four major frequency ranges, and several different types of antennas for each range. Let's take a look at them.

VHF Low Band

Frequencies in this band normally range from 30 to 50 MHz. Radios in this range are normally point to point and very few use repeaters. Being a low frequency, a large antenna is required, or at least a large matching coil. Antennas usually are between four and six feet in length, attached to a large spring base which is attached to the vehicle. Some operators do not like the large antenna size and opt for a smaller one. To offset the length of this antenna, a loading coil is added at the base. This type of antenna is approximately 30 inches in length and will resemble a High Band antenna except the antenna itself will be smaller in diameter and have a wide, coil base.

VHF High Band

Many organizations operate here. This band is very popular in medium-sized towns and small cities. Frequencies will start around 148 MHz and stop around 174 MHz. There are three types of antennas that you might look for. First is one that resembles a VHF Low Band except that it will have a narrower and taller coil. The antenna itself will also be about 30 inches in length. Another antenna to be on the lookout for is a what is called a quarter-wave antenna. This antenna is about 15 inches in length, has no loading coil and is usually attached to the vehicle with a silver ring (sometimes referred to as a "chrome dome"). The third is what appears to be a mix of the first two. At the base of the antenna is either a spring base or a thick black rubber looking base and a 12 to 15 inch rod attached to it. Except for the base, it looks like a shortened version of a car radio antenna.

UHF Band

A very popular band in major metropolitan areas. A lot of repeaters are utilized in this band. In large cities, frequencies will range from 450 to 470 MHz. In even-larger cities, such as Los Angeles and New York, frequencies can range up to 512 MHz. Just as in VHF High band, you will find a majority of UHF radios working off of three antenna types. One resembles the auto broadcast antenna. It will look like it is in two pieces - a thick lower portion and a thin, upper section with a silver or grey colored band in the center. This antenna will be about 36 inches in length. Another popular antenna is the 5/8th wave, center-load antenna. Easy to recognize, this antenna will be shorter than those previously mentioned and will have about a three-inch-thick, covered coil in the center. A favorite of many police departments is the quarter-wave antenna. Only 6 inches in length, this antenna is mainly used in areas with repeater operation. Even if the user has a high power radio, due to the length of the antenna reception would only be about two to three miles.

800 Band

Another popular frequency band. In large metropolitan areas, the vast majority of public safety agencies and business users are migrating to this band. Cellular phones are also in the same range. Expect frequencies used to range from 806 MHz up thru 940 MHz. Two of the antennas used in this band spread resemble those in the UHF range. The 5/8th wave center load and the quarter-wave are similar, except they are half the size. The 5/8's will be no more that 12 inches in length, including the center load. The quarter-wave will be about two to three inches overall. About the most popular antenna here is the cellular look-alike. Either on-glass or body mount, this antenna will be about 12 to 14 inches in length with a open coil in the center that resembles a pigtail.

There are many other types of mobile antennas, such as transit, undercover and aviation. The ones we talked about are about 99 percent of what you will find on cars and trucks. Besides what is listed here, you can learn more by contacting the various suppliers of antennas, such as Antenna Specialists, Larsen and others Request a catalog of their equipment. Not only do they show you what the mobile antennas look like for the various frequency bands, but they will show you antennas for portable and base stations, as well.

Remember, this will only get you in the general range and not nail down the exact frequency. For that, I hope by now you know how to use that Search function on your scanner!

USSN

PUBLIC SAFETY COMMUNICATIONS

by Ed Muro

Special Emergency Radio Service

The Emergency Medical Radio Service covers all communications pertaining to persons or organizations that may provide basic or advanced life support services. This is opposed to the Special Emergency Radio Service, detailed last month, which includes a long list of organizations eligible to use their frequencies. The EMRS is the newest of the land mobile services, created in response to requests from numerous public safety agencies around the country.

In the November, 1994 issue of *U.S. Scanner News* I detailed the system in use in Nassau County, New York. While there are many frequencies used to dispatch life support services around the country (refer to your favorite local frequency directory for the channels in use in your area), the Nassau County System uses standardized national frequencies set aside for biomedical telemetry. Commonly referred to as MED-1 through Med-8, the frequencies are numbered as follows:

CH:	Base:	Mobile:
Med-1	463.000	468.000
Med-2	463.025	468.025
Med-3	463.050	468.050
Med-4	463.075	468.075
Med-5	463.100	468.100
Med-6	463.125	468.125
Med-7	463.150	468.150
Med-8	463.175	468.175

Monitor these frequencies and report back to me with your findings.

47 CFR Sec. 90.27

Created in 1993, the Emergency Medical Radio Service is available only to persons or entities engaged in the provision of basic or advanced life support activities. Non-governmental entities applying for EMRS frequencies must submit a letter of approval from the local agency having jurisdiction over EMS service in the area. Emergency medical service providers are also still allowed to operate in the Special Emergency Radio Service, since the Emergency Medical Radio Service is reserved only for the provision of immediate-care services. Routine transports and administrative-type communications must still be carried out on frequencies in other services, such as the Special Emergency Radio Service or the Business Radio Service.

Emergency Medical Radio Service Frequency Table

Frequency or band	Class of station(s)	Limitations
72.00 to 76.00	Operational fixed	1
150.775	Mobile	
150.790	"	
155.325	Base or mobile	3, 4
155.340	"	4, 5
155.355	"	3, 4
155.385	"	3, 4
155.400	"	3, 4
169-172	Mobile	6
220.9025	Base	
220.9075	"	
220.9125	"	
220.9175	"	
220.9225	"	
221.9025	Mobile	
221.9075	"	
221.9125	"	
221.9175	"	
221.9225	"	
453.025	Base	7,9
453.050	Base or mobile	8
453.075	Base	7,9
453.100	Base or mobile	8
453.125	Base	7,9
453.150	Base or mobile	8
453.175	Base	7,9
453.200	Base or mobile	8
453.250	"	8
453.300	"	8
453.350	"	8
453.400	"	8
453.450	"	8
453.500	"	8
453.550	"	8
453.600	"	8
453.650	"	8
453.700	"	8
453.750	"	8
453.800	"	8
453.850	"	8
453.900	"	8
453.950	"	8
458.025	Mobile	9
458.050	"	8
458.075	"	9
458.100	"	8
458.125	"	9
458.150	"	8
458.175	"	9
458.200	"	8
458.250	"	8
458.300	"	8
458.350	"	8
458.400	"	8
458.450	"	8
458.500	"	8
458.550	"	8
458.600	"	8

458.650	"	8
458.700	"	8
458.750	"	8
458.800	"	8
458.850	"	8
458.900	"	8
458.950	"	8
460.525	Base or mobile	10
460.550	"	10
462.950	"	3, 11
462.975	"	3, 11
463.000	"	12
463.025	"	12
463.050	"	12
463.075	"	13
463.100	"	13
463.125	"	13
463.150	"	13
463.175	"	13
465.525	Mobile	10
465.550	"	10
467.950	"	3,11
467.975	"	3,11
468.000	"	12
468.025	"	12
468.050	"	12
468.075	"	13
468.100	"	13
468.125	"	13
468.150	"	13
468.175	"	13
806 to 824	"	
851 to 869	Base or mobile	
928 and above	Operational-fixed	
929 to 930	Base only	14

(1) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in Sec. 90.257(a)(1). These frequencies are shared with other services.

(2) A licensee regularly conducting two-way communication operations on this frequency may, on a secondary basis, also transmit one-way alert-paging signals to ambulance and rescue squad personnel.

(3) A licensee regularly conducting two-way communication operations on this frequency may, on a secondary basis, also transmit one-way alert-paging signals to ambulance and rescue squad personnel.

(4) In addition to other authorized uses, the use of F1B, F1D, F2B, or F2D emission is permitted on this frequency for the operation of bio-medical telemetry systems subject to the following limitations:

(i) Bio-medical telemetry operations may be conducted only in geographic areas beyond fifty miles from the centers of the following urbanized areas:

New York, NY-Northeastern New Jersey; Los Angeles-Long Beach, CA; Chicago, IL-Northwestern Indiana; Philadelphia, PA-NJ; Detroit, MI; San Francisco-Oakland, CA; Boston, MA; Washington, DC-MD-VA; Cleveland, OH; St. Louis, MO-IL; Pittsburgh, PA; Minneapolis-St. Paul, MN; Houston, TX; Baltimore, MD; Dallas, TX; Milwaukee, WI; Seattle-Everett, WA; Miami, FL; San Diego, CA; Atlanta, GA; Cincinnati, OH-KY; Kansas City, MO-KS; Buffalo, NY; Denver, CO; San Jose, CA; New Orleans, LA; Phoenix, AZ; Portland, OR-WA; Indianapolis, IN; Providence-Pawtucket-Warwick, RI-MA; Columbus, OH; San Antonio, TX; Louisville, KY-IN; Dayton, OH; Fort Worth, TX; Norfolk-Portsmouth, VA; Memphis, TN-MS; Sacramento, CA; Fort Lauderdale-Hollywood, FL; Rochester, NY; Tampa-St. Petersburg, FL.

(ii) The continuous carrier mode of operation may be used for telemetry transmissions on this frequency for periods up to two-minutes duration; following which there must be a break in the carrier for at least a one-minute period.

(5) This frequency may be designated by common consent for intra-system and inter-system mutual assistance purposes.

(6) Frequencies in this band will be assigned for low power wireless microphones in accordance with the provisions of Sec. 90.265.

(7) Paging licensees as of March 20, 1991 may continue to operate on a primary basis on these frequencies until January 14, 1998.

(8) This frequency is available on a shared basis with all other Public Safety Radio Services.

(9) This frequency is also authorized for use for bio-medical telemetry.

(10) This frequency is shared with the Police and Fire Radio services and may be designated by common consent for intra-system or mutual aid purposes.

(11) This frequency is primarily authorized for use in the dispatch of medical care vehicles and personnel for the rendition of medical services.

(12) This frequency is authorized for use for bio-medical telemetry. Other permissible communications are allowed on a secondary basis.

(13) This frequency is authorized only for communications between medical facilities vehicles and personnel related to the supervision and instruction for the treatment and transportation of patients in the rendition of medical services.

(14) Frequencies in this band are available only for one-way paging.

This month I received two letters from readers with valuable frequency information. The first is from Lou Gabrielson, of Amityville, New York. Lou states that the town is a small waterfront community and that there is no horror to speak of! The town has it's own police force and fire department but it can call the county for mutual aid. Lou provides the following frequencies:

Amityville PD Dispatch	155.580
Amityville PD Car-Car	159.150
Amityville FD	45.200
Amityville Highway Dept	33.100
Ambulance	155.325

The second letter comes from Bob Raleigh of College Station, Texas- Home of Texas A&M University. Bob provides a large assortment of frequencies for the Bryan / College Station area.

Bryan Police

Repeater	155.190
Repeater	155.610
Detectives	155.195

Bryan Fire

Base	154.250
	154.280
	154.415
Mobile	153.950

Bryan City:

Sheriff's Dept	155.160

College Station: Police

Base	154.845
Repeater	155.415
Mobile	154.770
Repeater	453.100
Repeater	453.150
Fire	154.250
Fire	154.340

Texas A&M

Police Repeater	155.565
Police Repeater	158.850
Fire:	154.190
Fire	154.250
Ambulance	158.925

Brazos County

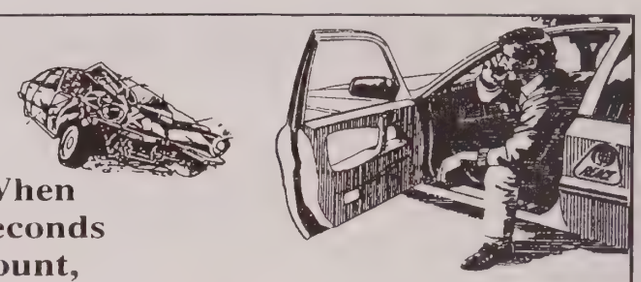
Sheriff's Office	155.670
Fire	154.280
Department of Public Safety	154.665

Hospitals: Bob has listed the frequencies for med-1 through med-8 on his report, so I will assume that they are active in his area.

County Sheriff:	
Grimes County:	154.800
Robertson County:	155.580
Burleson County:	155.535
Washington County:	155.625
Madison County:	154.725
Walker County:	155.730
Post Oak Mall Security	464.425

Thanks to both Bob and Lou for their contributions. Once again, if you have anything to contribute or if you have any questions write to Eddie Muro, P.O. Box 308, Cedarhurst, New York 11516. I can also be reached on the Internet at nyo41ed@aol.com. Please enclose a self addressed stamped envelope for a personal reply.

USSN



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- Search by ANY increment.
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- Log found frequencies to files while scanning.
- Scan Disk Files Frequencies.
- Spectrum Analysis to Screen OR Printer.

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FREQUENCY FORUM

by O.E. Simonson

May FCC Updates

The information in this column is raw FCC Data and, as such, contains duplications and typos.

Listed below are **Public Safety** licenses that have been recently issued by the Federal Communications Commission. Note that many of these may be licenses for additional transmitter sites, expired licenses, and so forth, and may not necessarily be "new" frequencies. The services represented are PF - Fire, PH - Highway, PL - Local Government, PM - Emergency Medical, PO - Forestry, PP - Police, PS - Special Emergency, GF - 866 Conventional Public Safety (National Plan), GP - Conventional Public Safety, YF - 866 Public Safety Trunking (National Plan), YP - Trunked Public Safety, GA - 900 MHz Conventional Public Safety, YA - 900 MHz Trunked Public Safety. There may be listings for municipalities that have licensees in other services also, such as the Power Radio Service - IW.

Alabama

City	Licensee	Callsign	Freq	Sr.
	ALABAMA, STATE OF	KNAU443	453.0500	PO
	BALDWIN COUNTY FIRE CHIEFS ASS	KSI261	154.2650	PF
	BALDWIN COUNTY FIRE CHIEFS ASS	KSI261	154.2800	PF
	BALDWIN COUNTY FIRE CHIEFS ASS	KSI261	154.2950	PF
	FLORENCE LAUDERDALE EMERGENCY	WNAX200	153.8000	PL
	FLORENCE LAUDERDALE EMERGENCY	WNAX200	155.0400	PL
	FLORENCE LAUDERDALE EMERGENCY	WNAX200	155.1000	PL
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	155.3400	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	155.4000	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	462.9500	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	462.9750	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.0000	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.0250	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.0500	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.0750	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.1000	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.1250	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.1500	PS
	MOBILE INFIRMARY MEDICAL CENTE	KVN490	463.1750	PS
	MONTGOMERY, COUNTY OF	WNRX759	154.5700	IB
	MONTGOMERY, COUNTY OF	WNRX759	154.6000	IB
	ROSALIE FIRE DEPT	WNSD353	154.1450	PF
BAY MINETT	BAY MINETTE, CITY OF	KIH236	154.7400	PP
DAPHNE	DAPHNE, CITY OF	WPHG756	856.9375	YP
DAPHNE	DAPHNE, CITY OF	WPHG756	857.9375	YP
DAPHNE	DAPHNE, CITY OF	WPHG756	858.9375	YP
DAPHNE	DAPHNE, CITY OF	WPHG756	859.9375	YP
DAPHNE	DAPHNE, CITY OF	WPHG756	860.9375	YP
FLORENCE	FLORENCE LAUDERDALE EMERGENCY	WNAX200	155.0400	PL
FLORENCE	FLORENCE LAUDERDALE EMERGENCY	WNAX200	155.8800	PL
FLORENCE	FLORENCE LAUDERDALE EMERGENCY	WNAX200	453.3750	PL
FLORENCE	FLORENCE LAUDERDALE EMERGENCY	WNAX200	458.3750	PL
FULTONDALE	FULTONDALE, CITY OF	KNBI436	151.3700	PL
KIMBERLY	KIMBERLY, TOWN OF	KNHW852	154.8750	PL
MOBILE	MOBILE, CITY OF	KIF803	460.6000	PF
OPELIKA	OPELIKA, CITY OF	WPHA766	854.0875	GP
PETERMAN	ALABAMA, STATE OF	KBI737	159.3150	PO
PIEDMONT	PIEDMONT, CITY OF	KNAD835	155.0400	PL
PRATTVILLE	PRATTVILLE, CITY OF	KCY202	155.0400	PL

Arkansas

City	Licensee	Callsign	Freq	Sr.
	DEER VOLUNTEER FIRE ASSOCIATIO	WNBB963	154.1300	PF
	DEER VOLUNTEER FIRE ASSOCIATIO	WNBB963	154.4450	PF
	WHEELER, CITY OF	WNSI459	154.1750	PF
JONESBORO	SAINT BERNARDS REGIONAL MEDICA	KBE455	155.3250	PS
JONESBORO	SAINT BERNARDS REGIONAL MEDICA	KBE455	155.3400	PS
MAGNOLIA	MAGNOLIA CITY HOSPITAL	WNSE929	155.3400	PS
SHANNON HI	SHANNON HILLS FIRE DEPT	WGC795	154.1600	PF

Arizona

City	Licensee	Callsign	Freq	Sr.
	BULLHEAD CITY, CITY OF	WPHH618	158.7750	PP
	BULLHEAD CITY, CITY OF	WPHH618	159.0150	PP
	PHOENIX, CITY OF	WPHB827	453.9625	PL
	PHOENIX, CITY OF	WPHB827	458.9625	PL
BISBEE	ARIZONA, STATE OF	WNBZ209	453.0250	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	453.0750	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	453.1250	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	453.1750	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	460.1500	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	460.5250	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	462.9500	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	462.9750	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	463.0000	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	463.0500	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	463.0750	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	463.1250	PM
BISBEE	ARIZONA, STATE OF	WNBZ209	463.1750	PM
BULLHEAD C	BULLHEAD CITY, CITY OF	WPHH618	155.0100	PP
BULLHEAD C	BULLHEAD CITY, CITY OF	WPHH618	155.0700	PP
CROWN KING	ARIZONA, STATE OF	KBM792	151.4300	PO
CROWN KING	ARIZONA, STATE OF	KBM792	151.4900	PO
DOUGLAS	DOUGLAS, CITY OF	KAT533	154.1300	PF
DOUGLAS	DOUGLAS, CITY OF	KAT533	154.3100	PF
EL MIRAGE	EL MIRAGE, CITY OF	KNIL465	154.0400	PL
FORT MC DO	FORT MC DOWELL, CITY OF	WPCP796	154.9650	PL
FORT MC DO	FORT MC DOWELL, CITY OF	WPCP796	155.9850	PL
GOODYEAR	GOODYEAR, CITY OF	WPHB820	155.4750	PP
LUKACHUKAI	SAN JUAN, COUNTY OF	KBF943	154.3850	PF
MESA	MESA, CITY OF	WPHB823	453.4750	PL
MESA	MESA, CITY OF	WPHB823	458.4750	PL
PHOENIX	AMERICAN RED CROSS	WNAD764	47.6200	PS
PHOENIX	ARIZONA, STATE OF	KGT582	150.9950	PL
SOMERTON	SOMERTON, CITY OF	WNSB841	154.1600	PF
SONOITA	SONOITA ELGIN EMERGENCY SERVIC	WNSA588	154.1750	PF
SOUTH TUCS	SOUTH TUCSON, CITY OF	WPAT711	154.6500	PP
SOUTH TUCS	SOUTH TUCSON, CITY OF	WPAT711	156.2100	PP
TUCSON	CORONA DE TUCSON FIRE DISTRICT	KNBJ586	453.5500	PF
TUCSON	PIMA, COUNTY OF	KYL605	151.3700	PO
TUCSON	TUCSON, CITY OF	WNTY529	952.8312	IW
WILHOIT	SOUTHERN YAVAPAI FIRE DEPARTME	WPHI906	153.8900	PF
WILHOIT	SOUTHERN YAVAPAI FIRE DEPARTME	WPHI906	154.2800	PF
WILHOIT	SOUTHERN YAVAPAI FIRE DEPARTME	WPHI906	154.3850	PF
WILHOIT	SOUTHERN YAVAPAI FIRE DEPARTME	WPHI906	154.4450	PF
WILLIAMS	WILLIAMS, CITY OF	WNSD293	155.6250	PP

California

City	Licensee	Callsign	Freq	Sr.
	CALIFORNIA SEARCH & RESCUE	KA69235	155.1600	PS
	CALIFORNIA SEARCH & RESCUE	KA69235	155.3400	PS
	CHINO VALLEY VETERINARY ASSOCI	WRW731	47.4600	PS
	DRUMMOND MEDICAL GROUP INC	WPHI905	155.2800	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	462.9500	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	462.9750	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.0000	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.0250	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.0500	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.0750	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.1000	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.1250	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.1500	PS
	GOLD COAST AMBULANCE SERVICE I	KB71349	463.1750	PS
	PERALTA HOSPITAL ASSOCIATION	KFS980	155.4000	PS
	SAN FRANCISCO, CITY & COUNTY O	KA8462	154.2650	PF
	SAN FRANCISCO, CITY & COUNTY O	KA8462	154.2950	PF
	SAN FRANCISCO, CITY & COUNTY O	KA8462	154.4300	PF
	SAN FRANCISCO, CITY & COUNTY O	KA8462	458.5500	PF
	SANTA BARBARA, COUNTY OF	KJP462	153.7700	PF
	SANTA BARBARA, COUNTY OF	KJP462	154.2500	PF
	TAMALPAIS COMMUNITY SERVICES D	KYK381	155.7750	PL
	VENTURA, COUNTY OF	KNGJ808	153.8450	PL
	YOLO, COUNTY OF	KMA871	154.8000	PP
	YOLO, COUNTY OF	KMA871	155.8500	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	471.0125	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	471.1000	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	471.1375	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	474.0125	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	474.1000	PP
ALHAMBRA	ALHAMBRA, CITY OF	KWT671	474.1375	PP
ALTA SIERR	KERN, COUNTY OF	WNHP642	460.1000	PP
BAKERSFIEL	KERN, COUNTY OF	KWV454	462.9500	PS
BAKERSFIEL	KERN, COUNTY OF	KWV454	462.9750	PS
BAKERSFIEL	KERN, COUNTY OF	KYB805	462.9750	PS
BAKERSFIEL	KERN, COUNTY OF	WRY690	462.9750	PS
BAKERSFIEL	KERN, COUNTY OF	WRY761	462.9750	PS
BARSTOW	CALIFORNIA, STATE OF	KFW86	955.1500	PL
BIG BEAR C	CALIFORNIA, STATE OF	WNTQ671	958.7500	PL
BISHOP	PARADISE FIRE PROTECTION DISTR	WNSE938	154.2500	PF
BISHOP	PARADISE FIRE PROTECTION DISTR	WNSE938	154.2800	PF
CHINO	CALIFORNIA, STATE OF	KNGF441	159.3000	PO
CHINO	CALIFORNIA, STATE OF	KNGF441	159.3300	PO
COLUSA	COLUSA, COUNTY OF	WNSG291	158.7450	PL
CROWLEY LA	MONO, COUNTY OF	WNSD949	154.0250	PL
DELANO	KERN, COUNTY OF	WYR541	462.9500	PS
DOWNEY	MONTEBELLO, CITY OF	KNGD850	859.2625	GP
EL NIDO	CALIFORNIA, STATE OF	KNJ87	171.9250	PO
EUREKA	EUREKA, CITY OF	KNIK453	153.8150	PL
EUREKA	EUREKA, CITY OF	WNSG290	154.0400	PL
FOREST FAL	SAN BERNARDINO, COUNTY OF	WPHA769	866.9125	GF
FOREST FAL	SAN BERNARDINO, COUNTY OF	WPHA769	867.6625	GF
FRESNO	CALIFORNIA, STATE OF	WPHD571	866.5375	GF
FRESNO	MID VALLEY FIRE DISTRICT	WNTL500	957.1500	PF
FRESNO	WEST PARK SCHOOL DISTRICT	WQC893	155.2950	PS
GRAPEVINE	KERN, COUNTY OF	WNHP642	460.1000	PP
GRAPEVINE	KERN, COUNTY OF	WNHP642	460.1500	PP
GRASS VALL	CALIFORNIA, STATE OF	WGK213	151.3250	PO
GRASS VALL	CALIFORNIA, STATE OF	WGK213	151.3550	PO
HEMET	HEMET, CITY OF	KB61040	155.0550	PP
HILLSBOROU	HILLSBOROUGH, TOWN OF	WIM373	488.3375	PP
HILLSBOROU	HILLSBOROUGH, TOWN OF	WIM373	491.3375	PP
HOOPA	HOOPA VALLEY BUSINESS COUNCIL	WNSG562	155.0250	PL
INDEPENDEN	INDEPENDENCE, CITY OF	WNSE830	154.2800	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	46.0800	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	46.1200	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	46.2800	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	46.4600	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	460.6125	PF
INVERNESS	INVERNESS FIRE DISTRICT	WPHI909	465.6125	PF
KEDDIE	PLUMAS, COUNTY OF	WSB814	37.9800	PH
KINGS BEAC	CALIFORNIA, STATE OF	KYD955	154.7100	PL
LOS ANGELE	LOS ANGELES, CITY OF	KTV832	453.8750	PL
LOS ANGELE	LOS ANGELES, COUNTY OF	KMJ53	1875.0000	PL
LOS GATOS	CALIFORNIA, STATE OF	KFD593	153.7550	PL
MADERA	MADERA, COUNTY OF	WNCT897	156.0000	PL
MADERA	MADERA, COUNTY OF	WNSA785	156.2400	PP
MANHATTAN	MANHATTAN BEACH, CITY OF	WZM644	39.5800	PL
MILL VALLE	CALIFORNIA, STATE OF	WPHI908	151.2650	PO
MODESTO	MODESTO, CITY OF	WDF953	154.1450	PF
MOJAVE	KERN, COUNTY OF	WRY755	462.9500	PS
MONOLITH	KERN, COUNTY OF	WNHP642	460.1500	PP
MONTEBELLO	MONTEBELLO, CITY OF	KNGD850	859.2625	GP
MONTEREY P	ALHAMBRA, CITY OF	KWT671	471.1375	PP
MONTEREY P	MONTEBELLO, CITY OF	KNGD850	859.2625	GP
MOUNT SHAS	SISKIYOU, COUNTY OF	KML450	154.1000	PL
ONTARIO	CHINO VALLEY VETERINARY ASSOCI	WRW731	47.4600	PS
ORANGE	CALIFORNIA, STATE OF	KGK555	153.7550	PL
ORANGE	CALIFORNIA, STATE OF	KGK555	154.9800	PL
PARADISE	BUTTE, COUNTY OF	KMB249	155.1600	PS
PARKER DAM	ARIZONA, STATE OF	KBJ905	453.0250	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	453.0750	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	453.1250	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	453.1750	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	460.1500	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	462.9500	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	462.9750	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	463.0750	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	463.1000	PM
PARKER DAM	ARIZONA, STATE OF	KBJ905	463.1250	PM
PARKER DAM	ARIZONA, STATE OF	KLM754	156.1350	PH
PHILO	ANDERSON VALLEY COMMUNITY SERV	KNCK654	153.7700	PF
PORTOLA	PLUMAS, COUNTY OF	WSB814	37.9800	PH
QUINCY	PLUMAS, COUNTY OF	WSB814	37.9800	PH
RANDSBURG	KERN, COUNTY OF	WNHP642	460.1000	PP
RANDSBURG	KERN, COUNTY OF	WNHP642	460.1500	PP
RED BLUFF	CALIFORNIA, STATE OF	KMW44	169.5000	PO
RICHMOND	KAISER FOUNDATION HOSPITALS	KXC738	155.2200	PS
RIDGECREST	KERN, COUNTY OF	WRY762	462.9750	PS
SAINT HELE	SAINT HELENA, CITY OF	WQA715	155.5200	PP
SAN DIEGO	SAN DIEGO, CITY OF	KMD727	158.9700	PP
SAN DIMAS	LOS ANGELES, CITY OF	KTV832	453.8750	PL
SAN FRANCI	CALIFORNIA PACIFIC MEDICAL CEN	KTS751	155.2800	PS
SAN JACINT	HEMET, CITY OF	KB61040	155.0550	PP
SAN JACINT	HEMET, CITY OF	KB61040	453.4125	PP
SAN JACINT	HEMET, CITY OF	KB61040	458.4125	PP
SAN JOSE	AMERICAN NATIONAL RED CROSS	WNSD894	47.4200	PS
SAN LUIS O	SAN LUIS OBISPO, CITY OF	KZM761	460.3750	PP
SANTA BARB	SANTA BARBARA, CITY OF	WGJ993	158.9250	PL
SANTA MARI	SANTA MARIA, CITY OF	KNIF979	460.1000	PP
SANTA ROSA	BENNETT VALLEY UNION SCHOOL DIST.	WNCM658	155.2800	PS
SEAVIEW	SONOMA, COUNTY OF	KYT293	155.1000	PL
SIGNAL HIL	LONG BEACH, CITY OF	WNSD275	153.6800	IW
TAFT	KERN, COUNTY OF	WRY756	462.9500	PS
TAFT	KERN, COUNTY OF	WRY756	462.9750	PS
TEHACHAPI	KERN, COUNTY OF	WRY764	462.9500	PS
TEHACHAPI	KERN, COUNTY OF	WRY764	462.9750	PS
THERMAL	CALIFORNIA, STATE OF	WAM99	159.2850	PO
THERMAL	CALIFORNIA, STATE OF	WAM99	159.3600	PO
TURLOCK	LANDER VETERINARY CLINIC INC	KMF902	47.5400	PS
VACAVILLE	SACRAMENTO, COUNTY OF	WNEH891	952.3562	PL
VACAVILLE	SACRAMENTO, COUNTY OF	WNEH891	952.3687	PL
VENTURA	VENTURA, COUNTY OF	KNGJ808	153.8450	PL
VICTORVILL	SAN BERNARDINO, COUNTY OF	KYQ445	155.7750	PL
WASCO	KERN, COUNTY OF	WRY758	462.9750	PS
WEST SACRA	YOLO, COUNTY OF	KMA871	155.5950	PP
WHEATLAND	CALIFORNIA, STATE OF	KHI59	169.5000	PO
WINTERS	YOLO, COUNTY OF	KMA871	154.8000	PP
WOODLAND	YOLO, COUNTY OF	KMA871	154.8000	PP

Colorado

City	Licensee	Callsign	Freq	Sr.
	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
	DOLORES, COUNTY OF	WSZ226	155.3400	PS
	FORT MORGAN, CITY OF	WPHH622	453.1875	PL
	JULESBURG SCHOOL DIST RE 1	KNJV244	47.5000	PS
	LINCOLN, COUNTY OF	KWQ550	156.0600	PH
	PITKIN, COUNTY OF	WNSE825	153.9500	PF
	PITKIN, COUNTY OF	WZN383	155.5350	PP
	SNOWMASS WILDCAT FIRE PROTECTI	KYT252	154.2800	PF
	STERLING, CITY OF	WNSE932	154.2800	PF
	VICTOR, CITY OF	KBF638	154.9650	PL
	WASHINGTON, COUNTY OF	WPAH965	155.4750	PP
	YUMA, COUNTY OF	WNSA659	153.7700	PF
BAILEY	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
BAILEY	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
BOULDER	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
BOULDER	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
BOULDER	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
BOULDER	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
CALHAN	EL PASO, COUNTY OF	KAH760	156.1200	PH
CALHAN	EL PASO, COUNTY OF	KAH760	156.2250	PH
COLLBRAN	PLATEAU VALLEY FIRE PROTECTION	WNMT211	154.4150	PF
DECKERS	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
DECKERS	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
DENVER	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
DENVER	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
DENVER	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
DENVER	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
DILLON	DENVER, CITY AND COUNTY OF	WPHD523	170.2500	IW
DILLON	DENVER, CITY AND COUNTY OF	WPHD523	171.9250	IW
GOLDEN	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
GOLDEN	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
GOLDEN	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
GOLDEN	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
HARTSEL	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
HARTSEL	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW
IDAHO SPRI	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
IDAHO SPRI	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
KREMMLING	DENVER, CITY AND COUNTY OF	WPHD523	170.2500	IW
KREMMLING	DENVER, CITY AND COUNTY OF	WPHD523	171.9250	IW
LAKE GEORG	DENVER, CITY AND COUNTY OF	WPHD523	170.2500	IW
LAKE GEORG	DENVER, CITY AND COUNTY OF	WPHD523	171.9250	IW
LAKEWOOD	DENVER, CITY AND COUNTY OF	WPHD525	170.2500	IW
LAKEWOOD	DENVER, CITY AND COUNTY OF	WPHD525	171.9250	IW
LAMAR	COLORADO, STATE OF	WPHH610	452.5000	PL
LAMAR	LAMAR, CITY OF	WNCL276	153.9500	PF
LAMAR	LAMAR, CITY OF	WNCL276	154.4000	PF
LITTLETON	DENVER, CITY AND COUNTY OF	WPHD523	170.2500	IW
LITTLETON	DENVER, CITY AND COUNTY OF	WPHD523	171.9250	IW
MEEKER	RIO BLANCO, COUNTY OF	WFK534	153.7400	PL
MEEKER	RIO BLANCO, COUNTY OF	WFK534	154.1150	PL
SECURITY	SECURITY FIRE PROTECTION DISTR	KNHX337	154.4150	PF
STERLING	WASHINGTON, COUNTY OF	WPAH965	155.0700	PP
WATERTON	DENVER, CITY AND COUNTY OF	WPHD523	170.2500	IW
WATERTON	DENVER, CITY AND COUNTY OF	WPHD523	171.9250	IW
WINTER PAR	DENVER, CITY AND COUNTY OF	WPHD524	170.2500	IW
WINTER PAR	DENVER, CITY AND COUNTY OF	WPHD524	171.9250	IW

Connecticut

City	Licensee	Callsign	Freq	Sr.
	CONNECTICUT, STATE OF	WNSD678	151.0250	PH
	CONNECTICUT, STATE OF	WNSD678	151.1150	PH
	CROMWELL, TOWN OF	KJJ377	46.1600	PF
	KING STREET VOLUNTEER DEPT	WPHB838	458.4875	PF
	LAKEVILLE HOSE COMPANY 1 INC	WRY261	33.7000	PF
	NORWALK, CITY OF	WRV710	154.1000	PL
	NORWALK, CITY OF	WRV710	158.9250	PL
	TURN OF RIVER FIRE DEPT INC	KCA290	154.1300	PF
	TURN OF RIVER FIRE DEPT INC	KCA290	154.3250	PF
ANSONIA	ANSONIA, CITY OF	WNCT900	153.8000	PL
AVON	CONNECTICUT, STATE OF	KCH602	44.5200	LU
BRIDGEPORT	BRIDGEPORT, CITY OF	WNCN605	153.7550	PL
CROMWELL	CROMWELL, TOWN OF	KJJ377	46.1000	PF
CROMWELL	CROMWELL, TOWN OF	KJJ377	46.1600	PF
CROMWELL	CROMWELL, TOWN OF	KJJ377	46.1800	PF
CROMWELL	CROMWELL, TOWN OF	KJJ377	154.4300	PF
DANBURY	CONNECTICUT, STATE OF	WSY478	462.9500	PS
DANBURY	CONNECTICUT, STATE OF	WSY478	462.9750	PS
DARIEN	DARIEN, CITY OF	WDQ914	158.9250	PL
FARMINGTON	FARMINGTON, TOWN OF	WNTY690	955.3500	PP
FARMINGTON	FARMINGTON, TOWN OF	WNTY691	958.5500	PP
FARMINGTON	FARMINGTON, TOWN OF	WNTY691	958.9500	PP
FARMINGTON	FARMINGTON, TOWN OF	WNTY692	954.9500	PP
LITCHFIELD	EAST LITCHFIELD VOL FIRE CO IN	WRW779	33.7000	PF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.0125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.1375	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.2750	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.3000	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.5125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.6125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.6375	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.7500	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	866.8625	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.0125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.0750	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.1375	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.2250	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.5125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	867.7000	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	868.0125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	868.1625	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	868.3125	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	868.5625	YF
MANSFIELD	CONNECTICUT, STATE OF	WPHC501	868.6125	YF
SUFFIELD	SUFFIELD, TOWN OF	WNSA699	154.9650	PL
WATERTOWN	CONNECTICUT, STATE OF	KZH932	462.9500	PS

Delaware

City	Licensee	Callsign	Freq	Sr.
	ROBBINS HOSE COMPANY 1	WNGP583	153.8900	PF
	ROBBINS HOSE COMPANY 1	WNGP583	154.3700	PF
	ROBBINS HOSE COMPANY 1	WNGP583	154.4450	PF

Florida

City	Licensee	Callsign	Freq	Sr.
	ALACHUA, COUNTY	KWI827	154.9500	PP
	ALACHUA, COUNTY	KWI827	155.3700	PP
	ALACHUA, COUNTY	KWI827	460.4000	PP
	ALACHUA, COUNTY	KWI827	460.4500	PP
	ALACHUA, COUNTY	KWI827	465.0750	PP
	ALACHUA, COUNTY	KWI827	465.1500	PP
	ALACHUA, COUNTY	KWI827	465.1750	PP
	ALACHUA, COUNTY	KWI827	465.2000	PP
	ALACHUA, COUNTY	KWI827	465.2750	PP
	ALACHUA, COUNTY	KWI827	465.3000	PP
	ALACHUA, COUNTY	KWI827	465.4750	PP
	ALACHUA, COUNTY OF	KWF908	151.1300	PF
	ALACHUA, COUNTY OF	KWF908	159.0600	PF
	ARCADIA, CITY OF	KIP567	45.8600	PP
	ARCADIA, CITY OF	KIP567	154.9500	PP
	ARCADIA, CITY OF	KIP567	155.3700	PP
	CEDAR KEY, CITY OF	KB69988	465.0375	PP
	CHARLOTTE, COUNTY OF	WSY224	156.1650	PH
	COLLIER, COUNTY OF	KYW874	154.2950	PF
	FORT MYERS BEACH FIRE CONTROL	KXV322	154.1300	PF
	HILLSBOROUGH, COUNTY OF	WRW573	456.5750	IW
	JACKSONVILLE BEACH, CITY OF	KDK660	154.2200	PF
	LEVY, COUNTY OF	KIF638	154.9500	PP
	LEVY, COUNTY OF	KIF638	155.3700	PP
	LEVY, COUNTY OF	KIF638	155.4900	PP
	LEVY, COUNTY OF	KIF638	158.9700	PP
	LEVY, COUNTY OF	KIF638	460.4000	PP
	LEVY, COUNTY OF	WNSG279	158.9550	PL

City	Licensee	Callsign	Freq	Sr.
	PALM BEACH, COUNTY OF	KB69656	154.2650	PF
	PALM BEACH, COUNTY OF	KNGB230	156.0300	PP
	PALM BEACH, COUNTY OF	KNGB230	159.1500	PP
	PALM BEACH, COUNTY OF	KTX803	155.2800	PS
	PALM BEACH, COUNTY OF	KTX803	155.3400	PS
	SEMINOLE, COUNTY OF	WNFW605	855.4875	YP
	SEMINOLE, COUNTY OF	WNFW605	856.2375	YP
	SEMINOLE, COUNTY OF	WNFW605	856.4625	YP
	SEMINOLE, COUNTY OF	WNFW605	857.2375	YP
	SEMINOLE, COUNTY OF	WNFW605	857.4625	YP
	SEMINOLE, COUNTY OF	WNFW605	857.9875	YP
	SEMINOLE, COUNTY OF	WNFW605	858.2375	YP
	SEMINOLE, COUNTY OF	WNFW605	858.4625	YP
	SEMINOLE, COUNTY OF	WNFW605	858.9875	YP
	SEMINOLE, COUNTY OF	WNFW605	859.2375	YP
	SEMINOLE, COUNTY OF	WNFW605	859.4625	YP
	SEMINOLE, COUNTY OF	WNFW605	859.9875	YP
	SEMINOLE, COUNTY OF	WNFW605	860.2375	YP
	SEMINOLE, COUNTY OF	WNFW605	860.4625	YP
	SEMINOLE, COUNTY OF	WNFW605	860.9875	YP
BETHUNE BE	NEW SMYRNA BEACH, CITY OF	WPHE759	452.4250	IW
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	856.2375	YP
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	856.4625	YP
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	859.2375	YP
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	860.2375	YP
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	860.4625	YP
CHULUOTA	SEMINOLE, COUNTY OF	WNFW605	860.9875	YP
COCOA	FLORIDA, STATE OF	KIP899	47.0200	PH
COCOA	FLORIDA, STATE OF	KIP899	47.1400	PH
COCOA	FLORIDA, STATE OF	KIP899	47.2600	PH
CRYSTAL RI	CRYSTAL RIVER, CITY OF	WNSC874	854.3625	GP
DAYTONA BE	FLORIDA, STATE OF	KIP899	47.0200	PH
DAYTONA BE	FLORIDA, STATE OF	KIP899	47.1400	PH
DAYTONA BE	FLORIDA, STATE OF	KIP899	47.2600	PH
DELAND	FLORIDA, STATE OF	KIP899	47.0200	PH
DELAND	FLORIDA, STATE OF	KIP899	47.1400	PH
DELAND	FLORIDA, STATE OF	KIP899	47.2600	PH
GAINESVILL	ALACHUA, COUNTY	KWI827	154.9500	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	155.3700	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.0750	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.1500	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.1750	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.2000	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.2750	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.3000	PP
GAINESVILL	ALACHUA, COUNTY	KWI827	460.4750	PP
GLIMPSE OF	ST JOHNS, COUNTY OF	WNEF469	953.0500	PL
GLIMPSE OF	ST JOHNS, COUNTY OF	WNEF469	954.0500	PL
LADY LAKE	LADY LAKE, CITY OF	WNFA909	154.7850	PP
LIVE OAK	SUWANNEE, COUNTY OF	WNPE973	153.7700	PF
LIVE OAK	SUWANNEE, COUNTY OF	WNPE973	154.1600	PF
NEW SMYRNA	NEW SMYRNA BEACH, CITY OF	WPHE759	452.2500	IW
NEW SMYRNA	NEW SMYRNA BEACH, CITY OF	WPHE759	452.4250	IW
OKEECHOBEE	FLORIDA, STATE OF	WPGU418	854.9875	GP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	453.0500	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	458.0500	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	460.1750	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	460.2250	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	460.2750	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	460.4000	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	465.1750	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	465.2250	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	465.2750	PP
PANAMA CIT	PANAMA CITY, CITY OF	KIB396	465.4000	PP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	855.4875	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	856.2375	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	856.4625	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	857.2375	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	857.4625	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	857.9875	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	858.2375	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	858.4625	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	858.9875	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	859.2375	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	859.4625	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	859.9875	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	860.2375	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	860.4625	YP
PAOLA	SEMINOLE, COUNTY OF	WNFW605	860.9875	YP
PONCE INLE	PONCE INLET, CITY OF	KBM265	154.9500	PP
ROCKLEDGE	FLORIDA, STATE OF	KIP899	47.0200	PH
ROCKLEDGE	FLORIDA, STATE OF	KIP899	47.1400	PH
SEBRING	HIGHLANDS ANIMAL HOSPITAL	KIX794	47.5000	PS
TAMPA	TAMPA, CITY OF	KSX313	453.3250	PL
TAMPA	TAMPA, CITY OF	KSX314	453.7750	PL
WABASSO	INDIAN RIVER DISTRICT SCHOOLS	KNFR797	155.2650	PS
WABASSO	INDIAN RIVER, COUNTY OF	KNFX773	154.9500	PP
WEST PALM	FLORIDA, STATE OF	WBE494	458.6250	PL
WEST PALM	FLORIDA, STATE OF	WBE495	458.6750	PL
WINTER SPR	WINTER SPRINGS, CITY OF	KXA411	153.8450	PL

Georgia

City	Licensee	Callsign	Freq	Sr.
	ATLANTA, CITY OF	KIK258	153.8300	PF
	ATLANTA, CITY OF	KIK258	153.8900	PF
	ATLANTA, CITY OF	KIK258	153.9500	PF
	ATLANTA, CITY OF	KIK258	154.2800	PF
	BARROW, COUNTY OF	KIN690	154.9050	PP
	BARROW, COUNTY OF	KIN690	154.9350	PP
	BARROW, COUNTY OF	KIN690	155.4300	PP
	CLINCH, COUNTY OF	WYK529	154.2800	PF
	COBB, COUNTY OF	KK8175	453.8000	PL
	COBB, COUNTY OF	KK8175	458.8000	PL
	COBB, COUNTY OF	WNFQ492	453.3750	PL
	COBB, COUNTY OF	WNFQ492	458.3750	PL
	EAST POINT, CITY OF	KFV817	153.7850	PL
	PLAINS, CITY OF	WSR210	155.8350	PL
	PORT WENTWORTH, CITY OF	KJU291	154.9050	PP
	PORT WENTWORTH, CITY OF	KJU291	154.9350	PP
	PORT WENTWORTH, CITY OF	KJU291	155.0550	PP
	PORT WENTWORTH, CITY OF	KJU291	155.1300	PP
	PORT WENTWORTH, CITY OF	KJU291	155.4750	PP
AMERICUS	AMERICUS, CITY OF	WNSF578	154.3850	PF
ATHENS	GEORGIA, STATE OF	WNSF360	153.7400	PL
ATHENS	NORTH EAST GEORGIA EMS	WZC711	462.9750	PS
ATHENS	NORTH EAST GEORGIA EMS	WZC711	463.0250	PS
ATHENS	NORTH EAST GEORGIA EMS	WZC711	463.1500	PS
ATHENS	NORTH EAST GEORGIA EMS	WZC711	463.1750	PS
ATLANTA	GEORGIA, STATE OF	KIB671	155.1900	PP
BREMEN	HIGHTOWER FUNERAL HOME INC	KYO357	155.2650	PS
BUCHANAN	HARALSON, COUNTY OF	WPHC409	159.6150	PP
CARROLLTON	GEORGIA, STATE OF	KRC642	155.7150	PL
CATAULA	HARRIS COUNTY OF	WNTY728	928.0687	PL
CATAULA	HARRIS COUNTY OF	WNTY728	952.0687	PL
COLUMBUS	COLUMBUS, CITY OF	WSW297	462.9500	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	462.9750	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.0000	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.0250	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.0500	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.0750	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.1000	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.1250	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.1500	PS
COLUMBUS	COLUMBUS, CITY OF	WSW297	463.1750	PS
COLUMBUS	CONSOLIDATED GOVERNMENT OF COL	WPHB634	852.3375	GP
COLUMBUS	CONSOLIDATED GOVERNMENT OF COL	WPHB634	854.0125	GP
COLUMBUS	CONSOLIDATED GOVERNMENT OF COL	WPHD327	852.3375	GP
COLUMBUS	CONSOLIDATED GOVERNMENT OF COL	WPHD327	854.0125	GP
CUTHBERT	COLUMBUS, CITY OF	WSY473	462.9500	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	462.9750	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.0000	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.0250	PS

City	Licensee	Callsign	Freq	Sr.
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.0500	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.0750	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.1000	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.1250	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.1500	PS
CUTHBERT	COLUMBUS, CITY OF	WSY473	463.1750	PS
ELLIJAY	ELLIJAY, CITY OF	KDP366	155.0400	PL
HAHIRA	HAHIRA, CITY OF	WNCR658	154.4300	PF
JESUP	GEORGIA, STATE OF	WNSF986	453.5750	PL
LEXINGTON	GEORGIA, STATE OF	KIJ522	159.3600	PO
LEXINGTON	GEORGIA, STATE OF	KIJ522	159.3900	PO
MARIETTA	COBB, COUNTY OF	KNJS396	453.6250	PL
MILLEDGEVI	MILLEDGEVILLE, CITY OF	KDK823	155.1000	PL
OGLETHORPE	OGLETHORPE, CITY OF	WXM832	155.9250	PL
SPARTA	HANCOCK MEMORIAL HOSPITAL	WPGW448	155.2200	PS
THOMSON	MC DUFFIE, COUNTY OF	KTR544	154.7400	PP
THOMSON	MC DUFFIE, COUNTY OF	KTR544	154.9050	PP
THOMSON	MC DUFFIE, COUNTY OF	KTR544	155.3700	PP
THOMSON	MC DUFFIE, COUNTY OF	WXP809	155.0550	PL
TRENTON	DADE, COUNTY OF	WPHH630	155.0100	PP
TYBEE ISLA	TYBEE ISLAND, CITY OF	KXA376	154.2800	PF
WINDER	BARROW, COUNTY OF	KIN690	151.2950	PP
WINDER	BARROW, COUNTY OF	KIN690	155.1300	PP
WINDER	BARROW, COUNTY OF	KIN690	155.4300	PP

Hawaii

	HAWAII, COUNTY OF	KA5682	154.9050	PP
	HAWAII, COUNTY OF	KA5682	155.3100	PP
	HAWAII, COUNTY OF	KA5682	155.7000	PP
	HAWAII, COUNTY OF	KA5682	155.7300	PP
	HAWAII, COUNTY OF	KA5682	155.9700	PP
	HAWAII, COUNTY OF	KA5682	156.0300	PP
	HAWAII, COUNTY OF	KA5682	156.1500	PP
	HAWAII, COUNTY OF	KA5682	156.2100	PP
EWA BEACH	HAWAII, STATE OF	WAZ419	953.9500	PL
HILO	HAWAII, STATE OF	WAZ416	953.5500	PL
HILO	HAWAII, STATE OF	WAZ416	954.3500	PL
KAILUA	HAWAII, STATE OF	WAZ479	953.2000	PL
PEPEEKEO	HAWAII, STATE OF	WAY490	957.1500	PL
WAILUKU	HAWAII, STATE OF	WAZ417	957.5500	PL
WAILUKU	HAWAII, STATE OF	WAZ417	957.9500	PL

Iowa

	DUBUQUE, COUNTY OF	KQT999	154.1750	PF
	LINN, COUNTY OF	WQD662	154.2650	PF
	MARION, CITY OF	WNSC826	456.1000	IW
	NORTH POLK COMMUNITY SCHOOL	WRZ291	37.9000	PS
	POCAHONTAS, COUNTY OF	KAE698	154.7250	PP
	POCAHONTAS, COUNTY OF	KAE698	154.7700	PP
	POCAHONTAS, COUNTY OF	KAE698	155.2500	PP
	POCAHONTAS, COUNTY OF	KAE698	155.4750	PP
	POCAHONTAS, COUNTY OF	KAE698	155.8500	PP
	WAVERLY SHELL ROCK SCHOOL	WQJ314	155.2950	PS
	WOODBURY, COUNTY OF	KUG837	155.7750	PL
ALBION	ALBION, CITY OF	KJQ630	155.0250	PL
ALLEMAN	NORTH POLK COMMUNITY SCHOOL	WRZ291	37.9000	PS
AUDUBON	AUDUBON, CITY OF	WNSE749	453.5750	PL
COUNCIL BL	LEWIS CENTRAL COMMUNITY SCHOOL	WSU350	46.0000	PS
DALLAS CEN	DALLAS CENTER, CITY OF	WNCR796	151.1900	PL
IOWA CITY	JOHNSON, COUNTY OF	WNCS996	155.7300	PP
IOWA CITY	UNIVERSITY OF IOWA	WNSG874	453.8500	PL
MARION	MARION, CITY OF	WNSC826	451.1000	IW
MARQUETTE	IOWA, STATE OF	WPHB834	154.6650	PP
MARQUETTE	IOWA, STATE OF	WPHB834	154.8000	PP
MARQUETTE	IOWA, STATE OF	WPHB834	154.9200	PP
MARQUETTE	IOWA, STATE OF	WPHB834	155.4300	PP
MARQUETTE	IOWA, STATE OF	WPHB834	155.4450	PP
MARQUETTE	IOWA, STATE OF	WPHB834	155.4750	PP
MARQUETTE	IOWA, STATE OF	WPHB834	155.5050	PP
MILFORD	MILFORD, CITY OF	WNFL595	153.7400	PL
MILFORD	MILFORD, CITY OF	WNFL595	154.9800	PL
MILFORD	MILFORD, CITY OF	WNFL595	158.7600	PL
MONONA	MONONA, CITY OF	WNCT232	155.0100	PP
SALEM	SALEM, CITY OF	WPHB832	155.8050	PL
WAPELLO	WAPELLO VOLUNTEER FIRE DEPT	KLV936	154.1450	PF

Idaho

	BANNOCK, COUNTY OF	KRL216	155.8050	PL
	CAMAS, COUNTY OF	WNBG835	465.0250	PP
	CAMAS, COUNTY OF	WNBG835	465.1500	PP
	CAMAS, COUNTY OF	WNBG835	465.4750	PP
	CAMAS, COUNTY OF	WNBG835	465.6000	PP
	CASSIA, COUNTY OF	WNCE406	458.4250	PL
	CUSTER, COUNTY OF	WNSA874	156.1050	PH
	CUSTER, COUNTY OF	WNSA874	159.1950	PH
	NAMPA, CITY OF	WNSC813	154.4450	PF
	POWER, COUNTY OF	KJF847	155.7150	PL
	RATHDRUM RURAL FIRE DISTRICT	WXY438	154.0100	PF
	RATHDRUM RURAL FIRE DISTRICT	WXY438	154.3100	PF
	SUN VALLEY, CITY OF	WNSG803	465.3750	PP
CALDWELL	CALDWELL, CITY OF	KBF825	154.0400	PL
COEUR D AL	COEURD ALENE, CITY OF	KON767	154.1300	PF
COEUR D AL	COEURD ALENE, CITY OF	KON767	154.1600	PF
EAGLE	IDAHO, STATE OF	WPHI907	159.3600	PO
PARMA	PARMA SCHOOL DIST 137	WNSC746	155.1750	PS
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	39.8200	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	453.3250	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	458.3250	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	460.4500	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	465.0250	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	465.2750	PP
RUPERT	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	465.4500	PP
SHOSHONE	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	39.8200	PP
SHOSHONE	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	453.3250	PP
SHOSHONE	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	458.3250	PP
SHOSHONE	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	460.4500	PP
SHOSHONE	LINCOLN COUNTY SHERIFFS OFFICE	KOH213	465.4500	PP
STAR	STAR FIRE DISTRICT	KFH427	154.2800	PF
STAR	STAR FIRE DISTRICT	KFH427	154.4300	PF

Illinois

	BARTONVILLE, VILLAGE OF	WPHI870	151.0250	PH
	BURBANK, CITY OF	KZ9634	154.2800	PF
	CHAMPAIGN, COUNTY OF	KSB219	154.7700	PP
	CHAMPAIGN, COUNTY OF	KUD283	155.0550	PL
	CHAMPAIGN, COUNTY OF	KUD283	458.2500	PL
	CHAMPAIGN, COUNTY OF	KUD283	458.6250	PL
	CHRISTIAN, COUNTY OF	KSA961	159.0900	PP
	MORRIS, CITY OF	WNBV987	154.2350	PF
	MORRIS, CITY OF	WNBV987	154.2650	PF
	MORRIS, CITY OF	WNBV987	154.4000	PF
	NORTHERN EDGAR COUNTY AMBULANC	KA67755	155.2200	PS
	NORTHERN EDGAR COUNTY AMBULANC	KA67755	155.3400	PS
	ORLAND PARK, VILLAGE OF	WPGX867	451.1125	IW
	PARK CITY, CITY OF	WQI978	155.0550	PL
	PLEASANTVIEW FIRE PROTECTION D	WNSE935	155.3400	PS
	TINLEY PARK, VILLAGE OF	WPHE758	451.5375	IW
	WABASH, COUNTY OF	WNAV279	156.1050	PH
ADDISON	ADDISON, CITY OF	WNCR651	155.0100	PP
BARTONVILL	BARTONVILLE, VILLAGE OF	WPHI870	151.0250	PH
BENTON	FRANKLIN, COUNTY OF	KYY922	154.9950	PL
BURNHAM	BURNHAM, VILLAGE OF	KRL412	155.7000	PP
CARBONDALE	ILLINOIS, STATE OF	WNQK878	453.1500	PL
CARMI	CARMI, TOWNSHIP OF	WNCH605	159.1950	PH
CERRO GORD	CERRO GORDO FIRE PROTECTION DI	KWO669	154.4000	PF
CHRISTOPHE	FRANKLIN COUNTY EMS INC	WSV411	155.2200	PS

City	Licensee	Callsign	Freq	Sr.
CLINTON	ILLINOIS, STATE OF	WNCQ892	31.9800	PO
DIXON	ILLINOIS, STATE OF	KNBZ622	45.3600	PL
DIXON	ILLINOIS, STATE OF	KNBZ622	45.4000	PL
EAST PEORI	EAST PEORIA, CITY OF	KLP540	154.2500	PF
EAST PEORI	EAST PEORIA, CITY OF	KLP540	460.5875	PF
EDGEMONT	ILLINOIS, STATE OF	WPHB835	37.1600	PP
EDGEMONT	ILLINOIS, STATE OF	WPHB835	37.3600	PP
EDGEMONT	ILLINOIS, STATE OF	WPHB835	42.5000	PP
ELWOOD	JACKSON, TOWNSHIP OF	KQY782	453.4500	PH
FOREST PAR	FOREST PARK, VILLAGE OF	WNCM652	154.2650	PF
FRANKFORT	FRANKFORT, VILLAGE OF	KNBD695	155.6700	PP
GENOA	GENOA, CITY OF	KTN241	153.8150	PP
GENOA	GENOA, CITY OF	KTN241	154.7400	PP
GENOA	GENOA, CITY OF	KTN241	154.8000	PP
GENOA	GENOA, CITY OF	KTN241	155.3700	PP
GENOA	GENOA, CITY OF	KTN241	155.9700	PP
GLENCOE	GLENCOE, VILLAGE OF	KZV978	154.2650	PF
HALLSVILLE	BARNETT, TOWNSHIP OF	KNDK539	151.0700	PH
JOLIET	JOLIET, CITY OF	WNTY516	956.3312	IW
JUSTICE	JUSTICE, VILLAGE OF	KCN973	154.4300	PF
LAKE IN TH	LAKE IN THE HILLS, VILLAGE OF	WNBZ967	154.0550	PL
MARKHAM	BREMEN, TOWNSHIP OF	KGP723	155.0250	PL
MATTESON	MATTESON, VILLAGE OF	KSG591	154.2800	PF
MATTESON	MATTESON, VILLAGE OF	KSG591	154.3700	PF
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	462.9500	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	462.9750	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.0000	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.0250	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.0500	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.0750	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.1000	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.1250	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.1500	PS
OAK LAWN	ADVOCATE HEALTH CARE	WNSC819	463.1750	PS
OLNEY	OLNEY, CITY OF	KAR457	460.0750	PP
PEORIA	ILLINOIS, STATE OF	WPGZ846	45.2800	PL
PEORIA	ILLINOIS, STATE OF	WPGZ846	45.3600	PL
PEORIA	ILLINOIS, STATE OF	WPGZ846	45.4000	PL
PEORIA	ILLINOIS, STATE OF	WPGZ846	45.4400	PL
PEOTONE	PEOTONE FIRE PROTECTION DISTRI	KXW476	155.1450	PL
PROSPECT H	PROSPECT HEIGHTS RURAL FIRE PR	KSD839	154.2050	PF
PROSPECT H	PROSPECT HEIGHTS RURAL FIRE PR	KSD839	154.2650	PF
ROSCOE	HARLEM ROSCOE FIRE DEPARTMENT	KSG453	154.3700	PF
SAINT ELMO	SAINT ELMO FIRE PROTECTION DIS	KFX224	154.3250	PF
SANDWICH	SANDWICH COMMUNITY HOSPITAL	WNCK383	155.3400	PS
SHARPSBURG	CHRISTIAN, COUNTY OF	KSA961	155.7000	PP
SUGAR GROV	SUGAR GROVE TOWNSHIP FIRE PROT	KLR441	154.2650	PF
TAYLORVILL	CHRISTIAN, COUNTY OF	KSA961	159.0900	PP
TREMONT	ELM GROVE, TOWNSHIP OF	WNSC749	150.9950	PH

Indiana

	AINSWORTH DEEP RIVER VOLUNTEER	KLO399	33.8200	PF
	AINSWORTH DEEP RIVER VOLUNTEER	KLO399	154.2800	PF
	AINSWORTH DEEP RIVER VOLUNTEER	KLO399	154.3850	PF
	CLARKSVILLE, CITY OF	KNBI405	155.4750	PP
	CLARKSVILLE, CITY OF	KNBI405	453.1500	PP
	CLINTON, COUNTY OF	KY6425	154.8900	PP
	CLINTON, COUNTY OF	KY6425	155.1300	PP
	CLINTON, COUNTY OF	KY6425	465.2500	PP
	CLINTON, COUNTY OF	KY6425	465.2750	PP
	GRANT, TOWNSHIP OF	KA70188	155.3400	PS
	OSGOOD, TOWN OF	KNBH436	154.1900	PF
	OSGOOD, TOWN OF	KNBH436	154.2350	PF
	OSGOOD, TOWN OF	KNBH436	154.2650	PF
	SCOTTSBURG, CITY OF	WQF612	155.1300	PP
	SHADELAND, TOWN OF	KCN818	154.2800	PF
	SHADELAND, TOWN OF	KCN818	154.3700	PF
	TELL CITY, CITY OF	WPHI904	154.8900	PP
	TELL CITY, CITY OF	WPHI904	155.1300	PP
	TELL CITY, CITY OF	WPHI904	155.4750	PP

City	Licensee	Callsign	Freq	Sr.
CLARKSVILL	CLARKSVILLE, CITY OF	KNBI405	155.3700	PP
CLARKSVILL	CLARKSVILLE, CITY OF	KNBI405	453.1500	PP
CORYDON	HARRISON, COUNTY OF	WQA831	155.0250	PL
CORYDON	HARRISON, COUNTY OF	WQA831	158.7450	PL
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	155.2650	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	155.3400	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.0000	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.0250	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.0500	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.0750	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.1000	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.1250	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.1500	PS
ELKHART	OSOLO EMERGENCY MEDICAL SERVIC	KNAE679	463.1750	PS
FRANKLIN	FRANKLIN, CITY OF	KDD902	460.6000	PF
FRANKLIN	FRANKLIN, CITY OF	KDD902	465.6000	PF
FRANKLIN	FRANKLIN, CITY OF	KDD902	465.6250	PF
JASONVILLE	METROPOLITAN SCHOOL DISTRICT O	WYP850	155.1750	PS
KOKOMO	SAINT JOSEPH MEMORIAL HOSPITAL	WNCS239	463.0250	PS
KOKOMO	SAINT JOSEPH MEMORIAL HOSPITAL	WNCS239	463.0500	PS
KOKOMO	SAINT JOSEPH MEMORIAL HOSPITAL	WNCS239	463.0750	PS
KOKOMO	SAINT JOSEPH MEMORIAL HOSPITAL	WNCS239	463.1250	PS
KOKOMO	SAINT JOSEPH MEMORIAL HOSPITAL	WNCS239	463.1750	PS
LAFAYETTE	SHADELAND, TOWN OF	KCN818	154.2800	PF
LAFAYETTE	SHADELAND, TOWN OF	KCN818	154.3700	PF
LAWRENCE	LAWRENCE, CITY OF	KSF316	155.1900	PP
LAWRENCEBU	LAWRENCEBURG, CITY OF	KFG838	153.4250	IW
LAWRENCEBU	LAWRENCEBURG, CITY OF	KFG838	153.5300	IW
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.0000	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.0250	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.0500	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.0750	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.1000	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.1250	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.1500	PS
LOWELL	SAINT ANTHONY MEDICAL CENTER	KUQ213	463.1750	PS
MERRILLVIL	INDEPENDENCE HILL VOL FIRE DEP	KFN682	154.2800	PF
MERRILLVIL	INDEPENDENCE HILL VOL FIRE DEP	KFN682	154.3850	PF
MISHAWAKA	PENN SOUTH FIRE DEPT INC	KSF714	154.2500	PF
MISHAWAKA	PENN SOUTH FIRE DEPT INC	KSF714	154.2800	PF
MOUNT VERN	POINT TOWNSHIP VOLUNTEER FIRE	WNSB372	154.4150	PF
NORTH MANC	NORTH MANCHESTER, TOWN OF	WNSE928	155.9250	PL
REDKEY	REDKEY, TOWN OF	WPHB837	158.8350	PL
SALEM	SALEM, CITY OF	KBQ782	154.2500	PF
SOUTH BEND	AMERICAN RED CROSS	KUC684	47.5800	PS
TELL CITY	TELL CITY, CITY OF	WPHI904	155.1300	PP
TELL CITY	TELL CITY, CITY OF	WPHI904	155.3700	PP
WEST LAFAY	WEST LAFAYETTE, CITY OF	KQS652	155.8950	PL

Kansas

	BELLE PLAINE, CITY OF	WSW868	46.1400	PF
	GROTH, DANIEL V	KRO304	155.2650	PS
	MAUDE NORTON MEMORIAL CITY HOS	KYI943	155.3400	PS
	OLPE DIST NO 1 FIRE DEPT	WRZ634	154.1750	PF
	WELLINGTON, CITY OF	KAB207	39.5400	PP
	WELLINGTON, CITY OF	KAB207	39.5800	PP
	WELLINGTON, CITY OF	KAB207	39.7000	PP
	WESTSIDE VETERINARY HOSPITAL P	WSZ625	155.1750	PS
BALDWIN CI	BALDWIN, CITY OF	KNJH297	39.4600	PP
BASEHOR	UNIFIED SCHOOL DISTRICT 458	KNFW735	155.1600	PS
BUFFALO	KANSAS, STATE OF	WPHA767	868.4000	GF
BUFFALO	KANSAS, STATE OF	WPHA768	868.8625	GF
DELPHOS	DELPHOS, CITY OF	WSW664	154.1450	PF
LANSING	KANSAS, STATE OF	KNEJ566	44.9400	PP
LANSING	KANSAS, STATE OF	KNEJ566	44.9800	PP
NESS CITY	NESS CITY, CITY OF	WRH296	155.0400	PL
SEDAN	BLACKJACK ANIMAL CLINIC	WRX728	155.2200	PS
TOPEKA	KANSAS, STATE OF	KQW532	453.7000	PL
WICHITA	WESLEY MEDICAL CENTER	WQS932	462.9500	PM

Kentucky

City	Licensee	Callsign	Freq	Sr.
	ANCHORAGE FIRE PROTECTION DIST	KIU424	154.2500	PF
	ANCHORAGE FIRE PROTECTION DIST	KIU424	154.4000	PF
	BOWLING GREEN, CITY OF	KGK454	154.7250	PP
	BOWLING GREEN, CITY OF	KGK454	155.5650	PP
	FLEMING COUNTY SCHOOLS	WSY261	155.2050	PS
	FRANKLIN, CITY OF	KBO843	458.7500	PL
	JEFFERSON, COUNTY OF	KXA329	453.4375	PL
	JEFFERSON, COUNTY OF	KXA329	453.5875	PL
	JEFFERSON, COUNTY OF	KXA329	458.4375	PL
	JEFFERSON, COUNTY OF	KXA329	458.5875	PL
	LANCASTER, CITY OF	KIP203	155.1300	PP
	LETCHER, COUNTY OF	WNSE746	153.9650	PL
	MEADE, COUNTY OF	WYZ370	154.1750	PF
	PARIS BOURBON COUNTY DISASTER	WNCR951	155.1600	PS
	PERRY, COUNTY OF	WPHH614	151.3250	PL
	PERRY, COUNTY OF	WPHH614	158.9400	PL
	STURGIS, CITY OF	KZW884	155.1000	PL
ASHLAND	BOYD, COUNTY OF	KIH564	154.2500	PF
ASHLAND	BOYD, COUNTY OF	KIH564	154.2800	PF
ASHLAND	BOYD, COUNTY OF	KIH564	457.0500	PF
ASHLAND	BOYD, COUNTY OF	KIH564	460.5750	PF
CENTRAL CI	CENTRAL CITY, CITY OF	WNNK481	156.2400	PH
CENTRAL CI	CENTRAL CITY, CITY OF	WNNK481	158.9850	PH
DIXON	WEBSTER, COUNTY OF	KIK805	155.5200	PP
ELKTON	TODD, COUNTY OF	WNSE866	155.1750	PS
GREENVILLE	MUHLENBERG, COUNTY OF	KJQ831	453.3500	PL
GREENVILLE	MUHLENBERG, COUNTY OF	KJQ831	458.3500	PL
HAZARD	PERRY, COUNTY OF	WPHH614	151.3250	PL
LOUISVILLE	AMERICAN RED CROSS	WRX680	47.4600	PS
LOUISVILLE	JEFFERSON, COUNTY OF	KXA329	453.3750	PL
LUCAS	KENTUCKY, COMMONWEALTH OF	KVJ962	453.9250	PL
MARION	CRITTENDEN, COUNTY OF	WNSI267	151.4150	PL

Louisiana

City	Licensee	Callsign	Freq	Sr.
	BATON ROUGE, CITY OF	WPHH989	866.0125	GF
	BATON ROUGE, CITY OF	WPHH989	866.5125	GF
	BATON ROUGE, CITY OF	WPHH989	867.0125	GF
	BATON ROUGE, CITY OF	WPHH989	867.5125	GF
	BATON ROUGE, CITY OF	WPHH989	868.0125	GF
	BATON ROUGE, CITY OF	WPHH993	866.0375	YF
	BATON ROUGE, CITY OF	WPHH993	866.2875	YF
	BATON ROUGE, CITY OF	WPHH993	866.4875	YF
	BATON ROUGE, CITY OF	WPHH993	866.5875	YF
	BATON ROUGE, CITY OF	WPHH993	866.8375	YF
	BATON ROUGE, CITY OF	WPHH993	867.0375	YF
	BATON ROUGE, CITY OF	WPHH993	867.1125	YF
	BATON ROUGE, CITY OF	WPHH993	867.3625	YF
	BATON ROUGE, CITY OF	WPHH993	867.5625	YF
	JEFFERSON PARISH FIRE DISTRICT	WSW771	458.3250	PF
	SAINT MARTIN, PARISH OF	WQC886	153.9500	PF
	SAINT MARTIN, PARISH OF	WQC886	154.0700	PF
	SAINT MARTIN, PARISH OF	WQC886	154.2800	PF
	WEST CARROLL MEMORIAL HOSPITAL	WRW307	155.3400	PS
ANGOLA	LOUISIANA, STATE OF	WPHE625	855.9875	YP
ANGOLA	LOUISIANA, STATE OF	WPHE625	856.7625	YP
ANGOLA	LOUISIANA, STATE OF	WPHE625	857.7625	YP
ANGOLA	LOUISIANA, STATE OF	WPHE625	858.7625	YP
ANGOLA	LOUISIANA, STATE OF	WPHE625	859.7625	YP
BATON ROUG	BATON ROUGE, CITY OF	WPHH989	866.0125	GF
BATON ROUG	BATON ROUGE, CITY OF	WPHH989	866.5125	GF
BATON ROUG	BATON ROUGE, CITY OF	WPHH989	867.0125	GF
BATON ROUG	BATON ROUGE, CITY OF	WPHH989	867.5125	GF
BATON ROUG	BATON ROUGE, CITY OF	WPHH989	868.0125	GF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	866.0375	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	866.2875	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	866.4875	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	866.5875	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	866.8375	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	867.0375	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	867.1125	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	867.3625	YF
BATON ROUG	BATON ROUGE, CITY OF	WPHH993	867.5625	YF
BATON ROUG	LOUISIANA, STATE OF	WYP676	465.2500	PP
BERWICK	LOUISIANA, STATE OF	WPHC853	866.0125	YF
BRIDGE CIT	LOUISIANA, STATE OF	WPHC854	866.3125	YF
BRIDGE CIT	LOUISIANA, STATE OF	WPHC854	867.1375	YF
BRIDGE CIT	LOUISIANA, STATE OF	WPHC854	867.2625	YF
BRIDGE CIT	LOUISIANA, STATE OF	WPHC854	868.4250	YF
BURAS	LOUISIANA, STATE OF	WPHC854	866.0125	YF
CALHOUN	LOUISIANA, STATE OF	WPHC856	866.0125	YF
CALHOUN	LOUISIANA, STATE OF	WPHE621	855.9875	YP
CALHOUN	LOUISIANA, STATE OF	WPHE621	856.9625	YP
CALHOUN	LOUISIANA, STATE OF	WPHE621	857.9625	YP
CALHOUN	LOUISIANA, STATE OF	WPHE621	858.9625	YP
CALHOUN	LOUISIANA, STATE OF	WPHE621	859.9625	YP
COLUMBIA	LOUISIANA, STATE OF	WPHE661	852.5375	YP
COLUMBIA	LOUISIANA, STATE OF	WPHE661	853.5875	YP
COLUMBIA	LOUISIANA, STATE OF	WPHE661	854.2125	YP
COLUMBIA	LOUISIANA, STATE OF	WPHE661	854.9875	YP
COLUMBIA	LOUISIANA, STATE OF	WPHE661	859.4625	YP
FARMERVILL	LOUISIANA, STATE OF	WPHH997	852.0625	YP
FARMERVILL	LOUISIANA, STATE OF	WPHH997	852.6625	YP
FARMERVILL	LOUISIANA, STATE OF	WPHH997	853.1375	YP
FARMERVILL	LOUISIANA, STATE OF	WPHH997	856.4875	YP
FARMERVILL	LOUISIANA, STATE OF	WPHH997	860.4375	YP
GEISMAR	LOUISIANA, STATE OF	WPHC856	866.3500	YF
GEISMAR	LOUISIANA, STATE OF	WPHC856	866.8875	YF
GEISMAR	LOUISIANA, STATE OF	WPHC856	867.8750	YF
GEISMAR	LOUISIANA, STATE OF	WPHC856	868.4125	YF
GOUDEAU	LOUISIANA, STATE OF	WPHE617	856.9875	YP
GOUDEAU	LOUISIANA, STATE OF	WPHE617	857.9875	YP
GOUDEAU	LOUISIANA, STATE OF	WPHE617	858.9875	YP
GOUDEAU	LOUISIANA, STATE OF	WPHE617	859.9875	YP
GOUDEAU	LOUISIANA, STATE OF	WPHE617	860.9875	YP
GOUDEAU	LOUISIANA, STATE OF	WPHE617	915.9875	YP
GREENSBURG	LOUISIANA, STATE OF	WPHE613	856.4375	YP
GREENSBURG	LOUISIANA, STATE OF	WPHE613	857.4375	YP
GREENSBURG	LOUISIANA, STATE OF	WPHE613	858.4375	YP
GREENSBURG	LOUISIANA, STATE OF	WPHE613	859.4375	YP
GREENSBURG	LOUISIANA, STATE OF	WPHE613	860.4375	YP
HACKBERRY	LOUISIANA, STATE OF	WPHE609	856.9625	YP
HACKBERRY	LOUISIANA, STATE OF	WPHE609	857.9625	YP
HACKBERRY	LOUISIANA, STATE OF	WPHE609	858.9625	YP
HACKBERRY	LOUISIANA, STATE OF	WPHE609	859.9625	YP
HACKBERRY	LOUISIANA, STATE OF	WPHE609	860.9625	YP
HOUMA	TERREBONNE PARISH CONSOLIDATED	WNTY680	956.3187	PL
JONESBORO	LOUISIANA, STATE OF	WPHE605	856.2375	YP
JONESBORO	LOUISIANA, STATE OF	WPHE605	857.2375	YP
JONESBORO	LOUISIANA, STATE OF	WPHE605	858.2375	YP
JONESBORO	LOUISIANA, STATE OF	WPHE605	859.2375	YP
JONESBORO	LOUISIANA, STATE OF	WPHE605	860.2375	YP
LEESVILLE	LOUISIANA, STATE OF	WPHG955	855.4625	YP
LEESVILLE	LOUISIANA, STATE OF	WPHG955	855.9875	YP
LEESVILLE	LOUISIANA, STATE OF	WPHG955	859.2375	YP
LEESVILLE	LOUISIANA, STATE OF	WPHG955	859.4625	YP
LEESVILLE	LOUISIANA, STATE OF	WPHG955	860.4625	YP
MANSFIELD	LOUISIANA, STATE OF	WPHC855	866.0125	YF
MANSFIELD	LOUISIANA, STATE OF	WPHE633	856.9875	YP
MANSFIELD	LOUISIANA, STATE OF	WPHE633	857.9875	YP
MANSFIELD	LOUISIANA, STATE OF	WPHE633	858.9875	YP
MANSFIELD	LOUISIANA, STATE OF	WPHE633	859.9875	YP
MANSFIELD	LOUISIANA, STATE OF	WPHE633	860.4375	YP
MANY	LOUISIANA, STATE OF	WPHE629	856.9625	YP
MANY	LOUISIANA, STATE OF	WPHE629	857.9625	YP
MANY	LOUISIANA, STATE OF	WPHE629	858.9625	YP
MANY	LOUISIANA, STATE OF	WPHE629	859.9625	YP
MANY	LOUISIANA, STATE OF	WPHE629	860.9625	YP
MARKSVILLE	MARKSVILLE, TOWN OF	KTX763	39.5000	PP
OIL CITY	OIL CITY, TOWN OF	KBP549	39.5000	PP
PARKS	PARKS, VILLAGE OF	WNSB321	155.4750	PP

City	Licensee	Callsign	Freq	Sr.
PARKS	PARKS, VILLAGE OF	WNSB321	155.5050	PP
PINEVILLE	LOUISIANA, STATE OF	KNDN340	857.2625	GP
PLAIN DEAL	LOUISIANA, STATE OF	WPHE653	852.1875	YP
PLAIN DEAL	LOUISIANA, STATE OF	WPHE653	856.9625	YP
PLAIN DEAL	LOUISIANA, STATE OF	WPHE653	857.9625	YP
PLAIN DEAL	LOUISIANA, STATE OF	WPHE653	858.9625	YP
PLAIN DEAL	LOUISIANA, STATE OF	WPHE653	859.9625	YP
RAMAH	LOUISIANA, STATE OF	WPHC853	866.3750	YF
RAMAH	LOUISIANA, STATE OF	WPHC853	866.9125	YF
RAMAH	LOUISIANA, STATE OF	WPHC853	868.3625	YF
RAMAH	LOUISIANA, STATE OF	WPHC853	868.8625	YF
RINGGOLD	LOUISIANA, STATE OF	WPHE641	856.7625	YP
RINGGOLD	LOUISIANA, STATE OF	WPHE641	857.7625	YP
RINGGOLD	LOUISIANA, STATE OF	WPHE641	858.7625	YP
RINGGOLD	LOUISIANA, STATE OF	WPHE641	859.7625	YP
RINGGOLD	LOUISIANA, STATE OF	WPHE641	860.7625	YP
SAINT ROSA	LOUISIANA, STATE OF	WPHC855	866.4875	YF
SAINT ROSA	LOUISIANA, STATE OF	WPHC855	867.6625	YF
SAINT ROSA	LOUISIANA, STATE OF	WPHC855	868.3000	YF
SAINT ROSA	LOUISIANA, STATE OF	WPHC855	868.8000	YF
SCOTT	SCOTT, CITY OF	KNFZ587	155.0250	PL
SCOTT	SCOTT, CITY OF	KNFZ587	453.6000	PL
SCOTT	SCOTT, CITY OF	KNFZ587	458.6000	PL
SHERIDAN	LOUISIANA, STATE OF	WPHE645	856.9625	YP
SHERIDAN	LOUISIANA, STATE OF	WPHE645	857.9625	YP
SHERIDAN	LOUISIANA, STATE OF	WPHE645	858.9625	YP
SHERIDAN	LOUISIANA, STATE OF	WPHE645	859.9625	YP
SHREVEPORT	LOUISIANA, STATE OF	WPHC852	866.0125	YF
SLIDELL	LOUISIANA, STATE OF	WPHE637	856.4625	YP
SLIDELL	LOUISIANA, STATE OF	WPHE637	857.4625	YP
SLIDELL	LOUISIANA, STATE OF	WPHE637	858.4625	YP
SLIDELL	LOUISIANA, STATE OF	WPHE637	859.4625	YP
SLIDELL	SLIDELL, CITY OF	KKP374	159.2100	PP
ST MARTINS	SAINT MARTINSVILLE, TOWN OF	KLO376	153.9500	PF
ST MARTINS	SAINT MARTINSVILLE, TOWN OF	KLO376	154.0700	PF
ST MARTINS	SAINT MARTINSVILLE, TOWN OF	KLO376	154.2800	PF
SUNSET	LOUISIANA, STATE OF	WPHE657	852.1875	YP
SUNSET	LOUISIANA, STATE OF	WPHE657	856.4375	YP
SUNSET	LOUISIANA, STATE OF	WPHE657	857.4375	YP
SUNSET	LOUISIANA, STATE OF	WPHE657	858.4375	YP
SUNSET	LOUISIANA, STATE OF	WPHE657	860.2375	YP
TALLULAH	LOUISIANA, STATE OF	WPHE649	857.2375	YP
TALLULAH	LOUISIANA, STATE OF	WPHE649	858.2375	YP
TALLULAH	LOUISIANA, STATE OF	WPHE649	859.2375	YP
TALLULAH	LOUISIANA, STATE OF	WPHE649	859.4375	YP
TALLULAH	LOUISIANA, STATE OF	WPHE649	860.2375	YP
WHEELING	LOUISIANA, STATE OF	WPHC852	866.1125	YF
WHEELING	LOUISIANA, STATE OF	WPHC852	866.3500	YF
WHEELING	LOUISIANA, STATE OF	WPHC852	866.9000	YF
WHEELING	LOUISIANA, STATE OF	WPHC852	868.7250	YF
WOODLAWN	LOUISIANA, STATE OF	WPHE601	854.9875	YP
WOODLAWN	LOUISIANA, STATE OF	WPHE601	857.7625	YP
WOODLAWN	LOUISIANA, STATE OF	WPHE601	858.7625	YP
WOODLAWN	LOUISIANA, STATE OF	WPHE601	859.7625	YP
WOODLAWN	LOUISIANA, STATE OF	WPHE601	860.7625	YP

Massachusetts

City	Licensee	Callsign	Freq	Sr.
	COUNTY AMBULANCE SERVICE INC	KNFG805	155.2800	PS
	COUNTY AMBULANCE SERVICE INC	KNFG805	155.3400	PS
	GROTON TOWN OF	KA69941	155.2800	PS
	GROTON TOWN OF	KA69941	155.3400	PS
	LYNNFIELD, TOWN OF	KNCR640	46.0600	PF
	LYNNFIELD, TOWN OF	KNCR640	46.4600	PF
	LYNNFIELD, TOWN OF	KNCR640	153.8300	PF
	LYNNFIELD, TOWN OF	KNCR640	154.0700	PF
ASHLAND	ASHLAND, TOWN OF	WIH877	484.3875	PF
BEDFORD	MASSACHUSETTS PORT AUTHORITY	WPHB638	855.2375	GP
CHICOPEE	CHICOPEE, CITY OF	WNTY272	954.0500	PL
CHICOPEE	CHICOPEE, CITY OF	WNTY273	954.8500	PL
CHICOPEE	CHICOPEE, CITY OF	WNTY274	958.4500	PL
CHICOPEE	CHICOPEE, CITY OF	WNTY274	959.0500	PL
CHICOPEE	CHICOPEE, CITY OF	WNTY275	955.4500	PL
DALTON	DALTON, TOWN OF	KEV474	45.8000	PH
GEORGETOWN	GEORGETOWN, TOWN OF	KCD690	154.0100	PF
GEORGETOWN	GEORGETOWN, TOWN OF	KCD690	154.0700	PF
GOSHEN	NORTHAMPTON AMBULANCE INC	WNSI462	155.2350	PS
GREAT BARR	GREAT BARRINGTON, TOWN OF	WPHH761	73.3125	IW
GREAT BARR	GREAT BARRINGTON, TOWN OF	WPHH761	173.3125	IW
HOLBROOK	HOLBROOK, TOWN OF	WPHG325	453.1500	PL
HOLBROOK	HOLBROOK, TOWN OF	WPHG325	458.1500	PL
LUNENBURG	LUNENBURG, TOWN OF	KCH343	155.7600	PL
MENDON	MENDON, TOWN OF	KCH317	155.5200	PP
NORTH READ	NORTH READING, TOWN OF	KNDH495	33.6600	PF
NORTH READ	NORTH READING, TOWN OF	KNDH495	154.0700	PF
TOPSFIELD	TOPSFIELD, CITY OF	WPHE756	159.5850	IW
UPTON	UPTON, TOWN OF	WNSC748	156.1200	PH
WAYLAND	WAYLAND, TOWN OF	KXJ371	156.1800	PH
WEST BOYLS	WEST BOYLSTON, TOWN OF	KCH239	33.7000	PF
WEST BOYLS	WEST BOYLSTON, TOWN OF	KCH239	33.9200	PF
WEST NEWBU	WEST NEWBURY, TOWN OF	KNBS866	153.8750	PL
WEST NEWBU	WEST NEWBURY, TOWN OF	KNBS866	155.1000	PL

Maryland

City	Licensee	Callsign	Freq	Sr.
	BETHESDA CHEVY CHASE RESCUE SQ	KDU472	33.0400	PS
	MC COOLE FIRE AND RESCUE DEPAR	WSX943	33.7800	PF
	MONTGOMERY, COUNTY OF	WQF598	457.7750	LU
	MYERSVILLE VOLUNTEER FIRE CO I	KJD879	46.4200	PF
	NEW MIDWAY VOL FIRE CO INC	KJI552	46.3400	PF
	NEW MIDWAY VOL FIRE CO INC	KJI552	46.4200	PF
	NEW MIDWAY VOL FIRE CO INC	KJI552	154.2800	PF
	SINGERLY FIRE COMPANY INC	KSS919	46.1800	PF
	SINGERLY FIRE COMPANY INC	KSS919	46.2600	PF
	SINGERLY FIRE COMPANY INC	KSS919	46.4000	PF
CRESAPTOWN	UNIVERSITY OF MARYLAND	WNTJ750	958.3500	PL
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	462.9500	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	462.9750	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	463.0250	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	463.0500	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	463.1000	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	463.1250	PS
DAMASCUS	MONTGOMERY, COUNTY OF	WRX770	463.1750	PS
FLINTSTONE	MARYLAND, STATE OF	KDE201	151.2050	PO
FORT RITCH	FRANKLIN, COUNTY OF	WPGZ854	460.1000	PP
FORT RITCH	FRANKLIN, COUNTY OF	WPGZ854	460.3000	PP
GAITHERSBU	MONTGOMERY, COUNTY OF	WQF598	452.7750	LU
GERMANTOWN	MONTGOMERY, COUNTY OF	WRX773	463.0250	PS
GERMANTOWN	MONTGOMERY, COUNTY OF	WRX773	463.1750	PS
LAUREL	MARYLAND, STATE OF	WNYA844	453.4750	PL
MCCOOLE	MC COOLE FIRE AND RESCUE DEPAR	WSX943	33.7800	PF
OAKLAND	MARYLAND, STATE OF	KFX287	151.2050	PO
OWINGS MIL	MARYLAND, STATE OF	KGE486	31.4600	PO
OWINGS MIL	MARYLAND, STATE OF	KGE486	151.2050	PO
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.0250	PS
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.0500	PS
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.1000	PS
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.1250	PS
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.1500	PS
ROCKVILLE	MONTGOMERY, COUNTY OF	WRX772	463.1750	PS
SALISBURY	MARYLAND, STATE OF	KFX286	151.2050	PO
SALISBURY	MARYLAND, STATE OF	KFX286	159.2400	PO
SILVER SPR	MONTGOMERY, COUNTY OF	WRX771	463.0000	PS
SILVER SPR	MONTGOMERY, COUNTY OF	WRX771	463.0250	PS
SILVER SPR	MONTGOMERY, COUNTY OF	WRX771	463.0500	PS
SILVER SPR	MONTGOMERY, COUNTY OF	WRX771	463.0750	PS
SILVER SPR	MONTGOMERY, COUNTY OF	WRX771	463.1000	PS
SNOW HILL	WORCESTER, COUNTY OF	KJF767	156.1200	PH
TWIGGTOWN	MARYLAND, STATE OF	WNTY925	954.7500	PL

Maine

City	Licensee	Callsign	Freq	Sr.
BIDDEFORD	DAYTON, TOWN OF	WNCM203	33.7000	PF
GARDINER	WEST GARDINER, TOWN OF	KZB308	154.2200	PF
GARDINER	WEST GARDINER, TOWN OF	KZB308	154.3100	PF
HOULTON	AROOSTOOK, COUNTY OF	KDL884	45.5600	PL
HOULTON	HOULTON REGIONAL HOSPITAL	KSS984	155.3850	PS
HOWLAND	HOWLAND, TOWN OF	KTB352	154.1150	PL
ORONO	UNIVERSITY OF MAINE	WQE676	154.3100	PF
ORONO	UNIVERSITY OF MAINE	WQE676	154.3550	PF
VEAZIE	VEAZIE, TOWN OF	KYL638	154.3100	PF

Michigan

City	Licensee	Callsign	Freq	Sr.
	BUCHANAN, CITY OF	WNCR594	465.1000	PP
	BUCHANAN, CITY OF	WNCR594	465.4250	PP
	F A BELL MEMORIAL HOSPITAL	KTS511	155.2800	PS
	F A BELL MEMORIAL HOSPITAL	KTS511	155.3400	PS
	GRAND TRAVERSE, COUNTY OF	WNSG804	158.8500	PP
	HARTLAND, TOWNSHIP OF	WNSI566	154.2950	PF
	MENOMINEE, COUNTY OF	WPGZ737	159.0900	PP
	MUSKEGON, TOWNSHIP OF	WNCR587	154.1900	PF
	MUSKEGON, TOWNSHIP OF	WNCR588	154.1900	PF
	PONTIAC, CITY OF	WPHD529	451.0625	IW
	TRI HOSPITAL EMS CORP	KVT497	155.2800	PS
	TRI HOSPITAL EMS CORP	KVT497	155.3400	PS
	TRI HOSPITAL EMS CORP	KVT497	458.0250	PS
	TRI HOSPITAL EMS CORP	KVT497	458.0750	PS
	TRI HOSPITAL EMS CORP	KVT497	458.1250	PS
	TRI HOSPITAL EMS CORP	KVT497	462.9500	PS
	TRI HOSPITAL EMS CORP	KVT497	462.9750	PS
	TRI HOSPITAL EMS CORP	KVT497	463.0000	PS
	TRI HOSPITAL EMS CORP	KVT497	463.0250	PS
	TRI HOSPITAL EMS CORP	KVT497	463.1250	PS
	TRI HOSPITAL EMS CORP	KVT497	463.1500	PS
	TRI HOSPITAL EMS CORP	KVT497	463.1750	PS
ANN ARBOR	REGENTS OF THE UNIVERSITY OF M	WNHN225	854.2625	YP
ANN ARBOR	REGENTS OF THE UNIVERSITY OF M	WNHN225	855.2625	YP
BELLEVILLE	VAN BUREN, CHARTER TOWNSHIP OF	WNTY862	956.3812	IW
BOYNE CITY	BOYNE CITY, CITY OF	WNCE422	155.1450	PL
BOYNE CITY	BOYNE CITY, CITY OF	WNCM655	155.1000	PL
CENTRAL LA	CENTRAL LAKE, TOWNSHIP OF	WPHF833	153.7700	PF
CENTRAL LA	CENTRAL LAKE, TOWNSHIP OF	WPHF833	153.8300	PF
CENTRAL LA	CENTRAL LAKE, TOWNSHIP OF	WPHF833	154.1450	PF
CENTRAL LA	CENTRAL LAKE, TOWNSHIP OF	WPHF833	154.2950	PF
CHELSEA	CHELSEA, VILLAGE OF	KQJ520	154.0100	PF
CHELSEA	CHELSEA, VILLAGE OF	KQJ520	154.1300	PF
CHELSEA	CHELSEA, VILLAGE OF	KQJ520	154.2500	PF
CHELSEA	CHELSEA, VILLAGE OF	KQJ520	154.2950	PF
CHELSEA	CHELSEA, VILLAGE OF	KQJ520	154.4150	PF
CLINTON	WAYSIDE VETERINARY CLINIC	WRZ655	155.1600	PS
DETROIT	HENRY FORD HOSPITAL	WNCP395	155.2200	PS
DETROIT	HENRY FORD HOSPITAL	WNCP395	155.3400	PS
EAST LANSI	MERIDIAN, TOWNSHIP OF	WNGC856	154.1000	PF
EAST LANSI	MERIDIAN, TOWNSHIP OF	WNGC856	154.3100	PF
EAST LANSI	MERIDIAN, TOWNSHIP OF	WNGC856	154.3850	PF
FOWLERVILL	FOWLERVILLE, VILLAGE OF	WNCL905	158.8950	PL
GRAND RAPI	GRAND RAPIDS, CITY OF	KQB234	154.7400	PP
LUDINGTON	LUDINGTON, CITY OF	WNTY517	956.3187	IW
MASON	INGHAM, COUNTY OF	WPHC797	465.3750	PP
OKEMOS	MERIDIAN, TOWNSHIP OF	WNGC856	154.1000	PF
OKEMOS	MERIDIAN, TOWNSHIP OF	WNGC856	154.2950	PF
OKEMOS	MERIDIAN, TOWNSHIP OF	WNGC856	154.3100	PF
OKEMOS	MERIDIAN, TOWNSHIP OF	WNGC856	154.3850	PF
PAW PAW	PAW PAW, VILLAGE OF	WPHB825	452.6500	PL
PORT AUSTI	PORT AUSTIN, VILLAGE OF	KAD9465	462.5750	ZA
ROCKFORD	ROCKFORD PUBLIC SCHOOLS	KEO583	47.6600	PS
SOUTHFIELD	COMMUNITY EMERGENCY MEDICAL SE	WXY367	155.2650	PS
SOUTHFIELD	COMMUNITY EMERGENCY MEDICAL SE	WXY367	155.3400	PS
SOUTHFIELD	MICHIGAN, STATE OF	KQA262	42.4800	PP
SOUTHFIELD	MICHIGAN, STATE OF	KQA262	155.5050	PP
SPRINGPORT	SPRINGPORT, VILLAGE OF	KBW968	154.1300	PF
WATERVLIET	WATERVLIET, CITY OF	KXH614	154.2500	PF
WATERVLIET	WATERVLIET, CITY OF	KXH614	154.2950	PF
WYOMING	WYOMING, CITY OF	WPHD509	152.3600	IB

Minnesota

City	Licensee	Callsign	Freq	Sr.
	EDINA, CITY OF	WPHE754	451.5750	IW
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	155.3400	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	155.3550	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.0000	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.0250	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.0500	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.0750	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.1000	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.1250	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.1500	PS
	FAIRMONT COUMMUNITY HOSPITAL	KXU378	463.1750	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.0000	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.0250	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.0500	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.0750	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.1000	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.1250	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.1500	PS
	HEALTH EAST TRANSPORTATION	KA55260	463.1750	PS
	INDEPENDENT SCHOOL DISTRICT NO	KYB780	155.2050	PS
	LESUEUR, COUNTY OF	KAH389	37.9400	PH
	MC LEOD, COUNTY OF	WNSF580	154.2950	PF
	MC LEOD, COUNTY OF	WNSF580	154.4150	PF
	MORTON, CITY OF	WRW308	154.2950	PF
	ROCK, COUNTY OF	KSM683	156.2400	PH
	ROCK, COUNTY OF	KSM683	158.9850	PH
	ROCKVILLE, CITY OF	WNCC683	154.2950	PF
	ROCKVILLE, CITY OF	WNCC683	154.4000	PF
AITKIN	AITKIN, CITY OF	WQF590	154.2950	PF
BERTHA	BERTHA, CITY OF	WNSE748	155.0850	PL
COLD SPRIN	MEHR, FRED	KNJH619	37.9400	PS
DELAVAN	DELAVAN SCHOOLS ISD 218	WNSA949	155.1600	PS
DELAVAN	DELAVAN SCHOOLS ISD 218	WNSA949	155.2350	PS
FARMINGTON	FARMINGTON, CITY OF	WNCD816	854.9625	GP
KASSON	KASSON, TOWN OF	WRZ610	154.2950	PF
KASSON	KASSON, TOWN OF	WRZ610	154.3250	PF
LUVERNE	ROCK, COUNTY OF	WNSF990	155.9550	PL
MANKATO	MANKATO, CITY OF	KXF617	453.5500	PL
MELROSE	INDEPENDENT SCHOOL DISTRICT 74	KWO262	155.2350	PS
MINNEAPOLI	HENNEPIN COUNTY MEDICAL CENTER	KGQ613	155.6100	PP
MINNEAPOLI	HENNEPIN COUNTY MEDICAL CENTER	KUJ503	39.9000	PP
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.2750	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.5500	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.8250	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.9250	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.9750	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	458.2750	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	458.5500	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	458.8250	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	458.9250	PL
MINNEAPOLI	METROPOLITAN COUNCIL TRANSIT O	KYT286	458.9750	PL
MINNEAPOLI	MINNEAPOLIS, CITY OF	KYG531	159.1500	PP
NEW BRIGHT	NEW BRIGHTON, CITY OF	WNTY267	928.3187	IW
NEW BRIGHT	NEW BRIGHTON, CITY OF	WNTY267	952.3187	IW
NEWPORT	NEWPORT, VILLAGE OF	KWM664	154.2650	PF
NEWPORT	NEWPORT, VILLAGE OF	KWM664	154.2950	PF
PLAINVIEW	WURST, HERBERT C	KXA216	155.2350	PS
SAINT PAUL	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.2750	PL
SAINT PAUL	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.5500	PL
SAINT PAUL	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.8250	PL
SAINT PAUL	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.9250	PL
SAINT PAUL	METROPOLITAN COUNCIL TRANSIT O	KYT286	453.9750	PL
SAINT PAUL	RYDER STUDENT TRANSPORTATION S	WNBH310	155.2350	PS

City	Licensee	Callsign	Freq	Sr.
SLAYTON	SLAYTON, CITY OF	WRX670	154.2950	PF
TYLER	TYLER BUS SERVICE INC	WNBU857	155.2350	PS
WILLMAR	WILLMAR, CITY OF	KYX437	153.5300	IW
WILLMAR	WILLMAR, CITY OF	KYX437	159.9750	IW

Missouri

City	Licensee	Callsign	Freq	Sr.
	BERNIE, CITY OF	WPHH760	451.1625	IW
	CLARK COUNTY AMBULANCE DISTRIC	KYO424	155.9400	PL
	COMPTON JUNCTION FIRE DISTRICT	WQC868	154.2800	PF
	COMPTON JUNCTION FIRE DISTRICT	WQC868	154.3100	PF
	CREIGHTON FIRE PROTECTION DIST	WNSB844	154.1450	PF
	CREIGHTON FIRE PROTECTION DIST	WNSB844	154.2800	PF
	CREIGHTON FIRE PROTECTION DIST	WNSB844	154.4000	PF
	LEWIS, COUNTY OF	KAK547	155.4750	PP
	LEWIS, COUNTY OF	KAK547	155.7300	PP
	LEWIS, COUNTY OF	KAK547	156.1500	PP
	LEWIS, COUNTY OF	KAK547	460.0125	PP
	OAK HILL OSTEOPATHIC HOSPITAL	KXX418	155.3400	PS
BERNIE	BERNIE, CITY OF	WNSC223	155.8350	PL
BONNE TERR	BONNE TERRE, CITY OF	KYS962	154.2800	PF
BONNE TERR	BONNE TERRE, CITY OF	KYS962	154.3400	PF
DELTA	DELTA, CITY OF	KNCE474	154.0550	PL
FLORISSANT	FLORISSANT, CITY OF	KCE423	453.2250	PL
FLORISSANT	FLORISSANT, CITY OF	KCE423	453.3250	PL
GREEN CAST	MISSOURI, STATE OF	KYK525	151.1600	PO
KAHOKA	CLARK COUNTY AMBULANCE DISTRIC	KYO424	155.9400	PL
KING CITY	KING CITY, CITY OF	KWZ959	155.7450	PL
LOUISIANA	LOUISIANA, CITY OF	KWV482	154.2800	PF
LOUISIANA	LOUISIANA, CITY OF	KWV482	154.3400	PF
MARSHALL	SALINE COUNTY AMBULANCE DISTRI	WNCM201	155.2950	PS
OSCEOLA	SAC OSAGE HOSPITAL	KXX498	155.2800	PS
OSCEOLA	SAC OSAGE HOSPITAL	KXX498	155.3400	PS
RENICK	RENICK REORGANIZED SCHOOL DIST	WNCT838	155.2050	PS
SAINT ROBE	SAINT ROBERT, CITY OF	WNSB261	154.7400	PP
TIMES BEAC	MISSOURI, STATE OF	WPHG324	151.1600	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	151.2650	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	151.4450	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.2250	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.2400	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.2700	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.3000	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.3150	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.3450	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.3600	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.4350	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.4500	PO
TIMES BEAC	MISSOURI, STATE OF	WPHG324	159.4650	PO
WEST PLAIN	HOWELL COUNTY RURAL FIRE DISTR	WNSB370	154.3250	PF

Mississippi

City	Licensee	Callsign	Freq	Sr.
	ALCORN COUNTY SCHOOL SYSTEM	WRY694	155.2200	PS
	CLARKE, COUNTY OF	KNJS783	154.1600	PF
	CLARKE, COUNTY OF	KNJS783	154.3400	PF
	FORREST COUNTY SCHOOL DISTRICT	KYB968	155.2950	PS
	HINDS COUNTY DISTRICT 5	WSX497	156.2250	PH
CANTON	MADISON GENERAL HOSPITAL	KSL240	155.2650	PS
CANTON	MADISON GENERAL HOSPITAL	KSL240	155.3400	PS
CORINTH	CORINTH, CITY OF	WNCV965	453.3000	PL
HATTIESBUR	HATTIESBURG LAUREL REGIONAL AI	WNSF946	45.1600	PL
MENDENHALL	SIMPSON, COUNTY OF	KYF278	45.2800	PL
ROSEDALE	ROSEDALE, CITY OF	WPHB824	460.5500	PF
ROSEDALE	ROSEDALE, CITY OF	WPHB824	465.5500	PF
SHAW	SHAW, CITY OF	WNCT323	155.4900	PP
SHAW	SHAW, CITY OF	WNCT323	155.6400	PP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	855.7375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	856.2125	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	856.7375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	857.2125	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	857.7375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	858.2125	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	858.7375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	859.2125	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	859.7375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	860.2125	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	860.4375	YP
VAN CLEAVE	JACKSON, COUNTY OF	WNSS282	860.7375	YP
YAZOO CITY	KING DAUGHTERS HOSPITAL	KWV742	155.2050	PS

Montana

City	Licensee	Callsign	Freq	Sr.
	EUREKA PUBLIC SCHOOLS DISTRICT	WPHC793	155.1600	PS
	GALLATIN GATEWAY RURAL FIRE DI	WNSA790	154.3850	PF
	HELENA, CITY OF	KNAO444	153.9950	PL
EUREKA	EUREKA PUBLIC SCHOOLS DISTRICT	WPHC793	155.1600	PS
KALISPELL	KALISPELL, CITY OF	WNSG910	155.9850	PL
SCOBEY	MONTANA, STATE OF	WNMB677	154.9200	PP
WHITE SULP	MEAGHER, COUNTY OF	WZM979	155.2800	PS
WHITEHALL	WHITEHALL SCHOOL DISTRICT	KKL705	155.2350	PS
WOLF POINT	MONTANA, STATE OF	WNMB677	154.9200	PP
WOLF POINT	MONTANA, STATE OF	WNMB677	155.5500	PP

North Carolina

City	Licensee	Callsign	Freq	Sr.
	BREVARD, CITY OF	WSR213	453.5750	PL
	CHATHAM COUNTY HOSPITAL INC	KYB832	155.2800	PS
	HEARTSEASE VFD	WSY221	154.1600	PF
	HENDERSON, COUNTY OF	WGT571	458.0250	PS
	HENDERSON, COUNTY OF	WGT571	458.0750	PS
	HENDERSON, COUNTY OF	WGT571	458.1250	PS
	HENDERSON, COUNTY OF	WGT571	458.1750	PS
	HENDERSON, COUNTY OF	WGT571	463.0000	PS
	HENDERSON, COUNTY OF	WGT571	463.0250	PS
	HENDERSON, COUNTY OF	WGT571	463.0500	PS
	HENDERSON, COUNTY OF	WGT571	463.0750	PS
	HENDERSON, COUNTY OF	WGT571	463.1000	PS
	HENDERSON, COUNTY OF	WGT571	463.1250	PS
	HENDERSON, COUNTY OF	WGT571	463.1500	PS
	HENDERSON, COUNTY OF	WGT571	463.1750	PS
	HUDSON, TOWN OF	WQJ938	155.5350	PP
	JACKSONVILLE, CITY OF	WNSB373	154.2500	PF
	LEXINGTON MEMORIAL HOSPITAL	KZX261	155.3250	PS
	MONCURE VOLUNTEER FIRE DEPT IN	WSY528	154.3250	PF
	NEW HANOVER CTY REGION O EMG M	KYU489	155.2800	PS
	NORTHWOODS VOLUNTEER FIRE DEPA	KJK976	46.0800	PF
	NORTHWOODS VOLUNTEER FIRE DEPA	KJK976	46.1400	PF
	ROBESON COUNTY EMERGENCY MEDIC	WQX957	155.1600	PS
	SKYLAND FIRE DEPARTMENT	WPHE287	151.1150	PF
	SKYLAND FIRE DEPARTMENT	WPHE287	154.3550	PF
	SPRUCE PINE RESCUE	KS6123	155.3400	PS
	WEAVER, JOSEPH D	KEM579	155.2200	PS
	WEST IREDELL FIRE RESCUE INC	KXX473	155.2800	PS
BLADENBORO	BLADENBORO, TOWN OF	WNCV216	453.7750	PL
BRYSON	BRYSON CITY, CITY OF	WPHH752	173.2037	IW
BRYSON CIT	BRYSON CITY, CITY OF	WPHH752	173.2037	IW
BRYSON CIT	BRYSON CITY, CITY OF	WPHH759	173.2037	IW
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	462.9500	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	462.9750	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.0000	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.0250	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.0500	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.0750	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.1000	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.1250	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.1500	PM
BURNSVILLE	NORTH CAROLINA, STATE OF	WSX408	463.1750	PM
BUTNER	NORTH CAROLINA, STATE OF	WPHB831	153.7400	PL
BUTNER	NORTH CAROLINA, STATE OF	WPHB831	154.7700	PL
BUTNER	NORTH CAROLINA, STATE OF	WPHB831	155.0400	PL

City	Licensee	Callsign	Freq	Sr.
BUTNER	NORTH CAROLINA, STATE OF	WPHB831	158.8500	PL
CANTON	NORTH CAROLINA, STATE OF	WNTY718	958.9500	PO
CARTHAGE	NORTH CAROLINA, STATE OF	WNTY719	957.2500	PO
CLINTON	NORTH CAROLINA, STATE OF	WQP780	42.6000	PP
CONCORD	NORTH CAROLINA, STATE OF	WPGZ850	155.4750	PP
EAGLE SPRI	NORTH CAROLINA, STATE OF	WNTT529	953.6500	PO
EASON CROS	GATES, COUNTY OF	WZQ310	154.1000	PL
HENDERSONV	HENDERSON, COUNTY OF	WGT571	463.0250	PS
HENDERSONV	HENDERSON, COUNTY OF	WGT571	463.0750	PS
HENDERSONV	HENDERSON, COUNTY OF	WGT571	463.1250	PS
HENDERSONV	HENDERSON, COUNTY OF	WGT571	463.1500	PS
JACKSONVIL	ONSLOW COUNTY SCHOOL BUS GARAG	WPHC390	151.8350	PS
KING	NORTH CAROLINA, STATE OF	WNTY716	957.7500	PO
KINSTON	LENOIR, COUNTY OF	KBA324	158.7600	PL
LEXINGTON	LEXINGTON, CITY OF	WNMX731	154.1300	PF
LEXINGTON	LEXINGTON, CITY OF	WNMX731	154.1900	PF
LEXINGTON	NORTH CAROLINA, STATE OF	WNTT533	954.1500	PO
MORGANTON	NORTH CAROLINA, STATE OF	WNSI740	158.8050	PL
NASHVILLE	NASHVILLE, TOWN OF	WSF273	453.5500	PL
SKYLAND	SKYLAND FIRE DEPARTMENT	WPHE287	154.3550	PF
SWANQUARTE	HYDE, COUNTY OF	WPHI910	153.9050	PL
SWANQUARTE	HYDE, COUNTY OF	WPHI910	158.7600	PL
WASHINGTON	BEAUFORT, COUNTY OF	KWO468	39.5000	PL
WATERVILLE	NORTH CAROLINA, STATE OF	WNTY717	955.3500	PO
WILLIAMSTO	WILLIAMSTON, CITY OF	KYK488	155.1900	PP
WILMINGTON	NEW HANOVER CTY REGION O EMG M	KYU489	155.3400	PS

North Dakota

City	Licensee	Callsign	Freq	Sr.
CENTER	OLIVER COUNTY FIRE PROTECTION	WNCJ704	154.2350	PF
DESLACS	UNITED PUBLIC SCHOOL DIST 7	KEF312	155.2800	PS

Nebraska

City	Licensee	Callsign	Freq	Sr.
	FAIRMONT, CITY OF	KNFJ242	39.9000	PL
	FAIRMONT, CITY OF	KNFJ242	39.9800	PL
	HAMILTON, COUNTY OF	KNAK516	453.3000	PL
	HAMILTON, COUNTY OF	KNAK516	453.3250	PL
	HAMILTON, COUNTY OF	KNAK516	458.3250	PL
	NORTH PLATTE, CITY OF	KAE793	153.4850	IW
	NORTH PLATTE, CITY OF	KAE793	153.5300	IW
	SALINE, COUNTY OF	KXZ858	159.0750	PH
	SARPY, COUNTY OF	WPHC940	856.2375	YP
	SARPY, COUNTY OF	WPHC940	856.9875	YP
	SARPY, COUNTY OF	WPHC940	857.2375	YP
	SARPY, COUNTY OF	WPHC940	857.9875	YP
	SARPY, COUNTY OF	WPHC940	858.2375	YP
	SARPY, COUNTY OF	WPHC940	858.9875	YP
	SARPY, COUNTY OF	WPHC940	859.2375	YP
	SARPY, COUNTY OF	WPHC940	859.9875	YP
	SARPY, COUNTY OF	WPHC940	860.2375	YP
	SARPY, COUNTY OF	WPHC940	860.9875	YP
	SARPY, COUNTY OF	WPHC944	855.7125	GP
AURORA	HAMILTON, COUNTY OF	KNAK516	453.3250	PL
AURORA	HAMILTON, COUNTY OF	KNAK516	458.3250	PL
BELLEVUE	SARPY, COUNTY OF	WPHC940	856.2375	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	856.9875	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	857.2375	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	857.9875	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	858.2375	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	858.9875	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	859.2375	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	859.9875	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	860.2375	YP
BELLEVUE	SARPY, COUNTY OF	WPHC940	860.9875	YP
BELLEVUE	SARPY, COUNTY OF	WPHC944	855.7125	GP
ELSIE	WHEATLAND SCHOOLS	KYL708	155.2200	PS
GRETNA	SARPY, COUNTY OF	WPHC944	855.7125	GP
NORTH BEND	NORTH BEND, CITY OF	WPHB833	453.9750	PL
NORTH BEND	NORTH BEND, CITY OF	WPHB833	458.9750	PL
PAPILLION	SARPY, COUNTY OF	WPHC940	856.2375	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	856.9875	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	857.2375	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	857.9875	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	858.2375	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	858.9875	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	859.2375	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	859.9875	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	860.2375	YP
PAPILLION	SARPY, COUNTY OF	WPHC940	860.9875	YP
PAPILLION	SARPY, COUNTY OF	WPHC944	855.7125	GP
PLATTSMOUT	RISHEL, WILLIAM O	WRY449	47.6200	PS
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	856.2375	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	856.9875	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	857.2375	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	857.9875	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	858.2375	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	858.9875	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	859.2375	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	859.9875	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	860.2375	YP
SPRINGFIEL	SARPY, COUNTY OF	WPHC940	860.9875	YP

New Hampshire

City	Licensee	Callsign	Freq	Sr.
	HOOKSETT, TOWN OF	WPHH626	453.5125	PL
	HOOKSETT, TOWN OF	WPHH626	453.7625	PL
	HOOKSETT, TOWN OF	WPHH626	458.5125	PL
	HOOKSETT, TOWN OF	WPHH626	458.7625	PL
CONWAY	CONWAY SCHOOL DISTRICT	WNSD404	155.2050	PS
FRANCONIA	NEW HAMPSHIRE, STATE OF	KYK514	453.9750	PL
GOSHEN	GOSHEN FIRE DEPARTMENT	WSS382	153.9500	PF
HANOVER	HANOVER, TOWN OF	WQG799	155.2800	PS
LANCASTER	WEEKS MEMORIAL HOSPITAL	KRF485	155.3400	PS
LINCOLN	LINWOOD AMBULANCE SERVICE	WNGB371	155.2350	PS
LITCHFIELD	LITCHFIELD, TOWN OF	WNSG386	154.9050	PP
NEWPORT	NEWPORT, TOWN OF	WRW363	154.0700	PF
NEWPORT	NEWPORT, TOWN OF	WRW363	154.2050	PF

New Jersey

City	Licensee	Callsign	Freq	Sr.
	BERGEN, COUNTY OF	KJB888	33.8600	PF
	BERGEN, COUNTY OF	KJB888	153.7700	PF
	BERGEN, COUNTY OF	KJB888	154.1600	PF
	BERGEN, COUNTY OF	KJB888	154.2800	PF
	CLOSTER, BOROUGH OF	WPHI911	158.8800	PL
	HAMILTON, TOWNSHIP OF	KEG513	154.2650	PF
	HAMILTON, TOWNSHIP OF	KEG513	154.3550	PF
	HAMILTON, TOWNSHIP OF	KEG513	154.4300	PF
	MAYFLOWER CONTRACT SERVICES IN	KLG571	155.2350	PS
	MAYWOOD, BOROUGH OF	WXP585	154.7250	PP
	MAYWOOD, BOROUGH OF	WXP585	155.4750	PP
	VENTNOR, CITY OF	KTH638	153.7850	PL
BRIGANTINE	BRIGANTINE, CITY OF	WNCR668	154.3100	PF
LINCOLN PA	PEQUANNOCK LINCOLN PARK & FAIR	WSB799	154.1150	PL
MEDFORD	UNION FIRE COMPANY	WQN718	154.1900	PF
PEDRICKTOW	WALTS BUS SERVICE	WNSD405	155.1600	PS
PEDRICKTOW	WALTS BUS SERVICE	WNSD405	155.2200	PS
ROCHELLE P	ROCHELLE PARK, BOROUGH OF	WNCM701	460.4500	PP
SOUTH BRUN	SOUTH BRUNSWICK, TOWNSHIP OF	WNQS444	866.0750	YF
SOUTH BRUN	SOUTH BRUNSWICK, TOWNSHIP OF	WNQS444	866.4000	YF
SOUTH BRUN	SOUTH BRUNSWICK, TOWNSHIP OF	WNQS444	866.7000	YF
SOUTH BRUN	SOUTH BRUNSWICK, TOWNSHIP OF	WNQS444	868.4125	YF
SOUTH BRUN	SOUTH BRUNSWICK, TOWNSHIP OF	WNQS444	868.7375	YF
SUSSEX	SUSSEX, BOROUGH OF	KRF516	155.0100	PP
WEST NEW Y	CJP HOLDING COMPANY INC	WPHG667	155.2200	PS
WHARTON	WHARTON, BOROUGH OF	KLD668	46.4200	PF
WOOD RIDGE	WOOD RIDGE, BOROUGH OF	WNBT663	154.8450	PP
WOOD RIDGE	WOOD RIDGE, BOROUGH OF	WNBT663	155.7300	PP

New Mexico

City	Licensee	Callsign	Freq	Sr.
	DEXTER, TOWN OF	KYL818	155.8200	PL
	EDDY, COUNTY OF	WNSG805	156.1050	PH
	EDDY, COUNTY OF	WNSG805	159.1350	PH
	RED RIVER, TOWN OF	KOL885	155.0550	PL
	SAN JUAN, COUNTY OF	KBF943	153.7700	PF
	SAN JUAN, COUNTY OF	KBF943	153.8300	PF
	SAN JUAN, COUNTY OF	KBF943	154.2200	PF
	SAN JUAN, COUNTY OF	KBF943	154.2950	PF
	SAN JUAN, COUNTY OF	KBF943	154.3850	PF
	SAN JUAN, COUNTY OF	KBF943	154.4450	PF
BLOOMFIELD	SAN JUAN, COUNTY OF	KBF943	154.2200	PF
FARMINGTON	SAN JUAN, COUNTY OF	KBF943	154.2950	PF
KIRTLAND	SAN JUAN, COUNTY OF	KBF943	153.7700	PF
KIRTLAND	SAN JUAN, COUNTY OF	KBF943	153.8300	PF
KIRTLAND	SAN JUAN, COUNTY OF	KBF943	154.3850	PF
KIRTLAND	SAN JUAN, COUNTY OF	KBF943	154.4450	PF
MAGDALENA	MAGDALENA, VILLAGE OF	WRG573	155.1150	PL
RED RIVER	RED RIVER, TOWN OF	KOL885	155.8050	PL
SANTA FE	SANTA FE, CITY OF	WNCR800	159.1350	PH

Nevada

City	Licensee	Callsign	Freq	Sr.
	MINERAL, COUNTY OF	WNSC303	155.7900	PP
FALLON	NEVADA, STATE OF	WDN348	159.3750	PO
MORROW	WASHOE, COUNTY OF	WNTY277	956.4437	IW
STATELINE	DOUGLAS, COUNTY OF	WQF601	154.8900	PP

New York

City	Licensee	Callsign	Freq	Sr.
	ANGELICA, VILLAGE OF	WRU910	154.7850	PP
	ANGELICA, VILLAGE OF	WRU910	155.3100	PP
	ANGELICA, VILLAGE OF	WRU910	155.3700	PP
	COLUMBIA, TOWN OF	WQJ324	156.2250	PH
	HARTWICK, TOWN OF	WNCH494	155.9850	PL
	NEW YORK, CITY OF	KYK890	154.5400	IB
	OGDEN, TOWN OF	KNJJ227	37.9400	PH
	PERINTON VOLUNTEER AMBULANCE C	KFZ813	155.2200	PS
	PERINTON VOLUNTEER AMBULANCE C	KFZ813	463.0000	PS
	PLAINEDGE UNION FREE SCHOOL DI	WXS848	33.1000	PS
	ROCKLAND, COUNTY OF	WNSC439	460.6125	PF
	ROCKLAND, COUNTY OF	WNSC439	460.6375	PF
	ROCKLAND, COUNTY OF	WNSC439	465.6375	PF
	SUFFOLK, COUNTY OF	KK7219	155.7600	PL
	WEST LEYDEN, VILLAGE OF	WRY275	154.1300	PF
ANGOLA	NEW YORK, STATE OF	KNAI216	155.6850	PP
ANGOLA	NEW YORK, STATE OF	KNAI216	156.1200	PP
ANGOLA	NEW YORK, STATE OF	KNAI216	159.1950	PP
BEMUS POIN	BEMUS POINT, VILLAGE OF	KEM430	46.1000	PF
BEMUS POIN	BEMUS POINT, VILLAGE OF	KEM430	46.1400	PF
BINGHAMTON	NEW YORK, STATE OF	WQC892	159.3000	PO
BRASHER FA	NEW YORK, STATE OF	WNSC404	453.9250	PP
BUTLER TOW	NEW YORK, STATE OF	WNSC405	453.3250	PP
CALEDONIA	CALEDONIA FIRE DISTRICT	KLW314	154.3100	PF
CONSTABLE	CONSTABLE, CITY OF	WNAG499	156.1050	PH
COXSACKIE	COXSACKIE, VILLAGE OF	WNSI270	159.1800	PH
FAIRPORT	PERINTON VOLUNTEER AMBULANCE C	KFZ813	155.1750	PS
FAIRPORT	PERINTON VOLUNTEER AMBULANCE C	KFZ813	155.2950	PS
FAIRPORT	PERINTON VOLUNTEER AMBULANCE C	KFZ813	463.0750	PS
FAIRPORT	PERINTON VOLUNTEER AMBULANCE C	KFZ813	463.1000	PS
FAIRPORT	PERINTON VOLUNTEER AMBULANCE C	KFZ813	463.1500	PS
FREEPORT	FREEPORT, VILLAGE OF	KEB461	154.8150	PP
GRAND ISLA	NEW YORK, STATE OF	KNAI216	155.6850	PP
GRAND ISLA	NEW YORK, STATE OF	KNAI216	156.1200	PP
GRAND ISLA	NEW YORK, STATE OF	KNAI216	159.1950	PP
HOLBROOK	HOLBROOK FIRE DISTRICT	KEF434	45.9400	PF
HOLBROOK	HOLBROOK FIRE DISTRICT	KEF434	46.4400	PF
HOLBROOK	HOLBROOK FIRE DISTRICT	KEF434	46.4600	PF
HOLBROOK	HOLBROOK FIRE DISTRICT	KEF434	458.1625	PF
HOLBROOK	HOLBROOK FIRE DISTRICT	KEF434	458.1875	PF
MAMARONECK	MAMARONECK, TOWN OF	WNCU453	154.7550	PP
MARCY	NEW YORK, STATE OF	WPHH951	154.6950	PP
MARCY	NEW YORK, STATE OF	WPHH951	155.3700	PP
MARCY	NEW YORK, STATE OF	WPHH951	155.4750	PP
MARCY	NEW YORK, STATE OF	WPHH951	155.5050	PP
MC CONNELL	MC CONNELLSVILLE FIRE DEPARTME	WNCR415	46.1000	PF
NEW PALTZ	NEW YORK, STATE OF	WQG753	151.2200	PO
NEW PALTZ	NEW YORK, STATE OF	WQG753	159.4350	PO
NEW YORK	NEW YORK, CITY OF	KTD692	30.8000	IB
NEW YORK	NEW YORK, CITY OF	KTD692	464.0000	IB
NEW YORK	NEW YORK, CITY OF	KUZ599	453.7750	PL
NEW YORK	NEW YORK, CITY OF	KVC689	461.3500	IB
NEW YORK	NEW YORK, CITY OF	KVW459	151.8950	IB
NEW YORK	NEW YORK, CITY OF	KWW250	464.4250	IB
NEW YORK	NEW YORK, CITY OF	KYQ231	464.0000	IB
NEW YORK	NEW YORK, CITY OF	KYQ232	464.7750	IB
NEW YORK	NEW YORK, CITY OF	KYR368	464.0000	IB
NEW YORK	NEW YORK, CITY OF	WIH586	470.4875	PL
NEWBURGH	NEWBURGH, CITY OF	WNSG278	154.3400	PF
NIAGARA FA	NEW YORK, STATE OF	KNAI216	155.3700	PP
NIAGARA FA	NEW YORK, STATE OF	KNAI216	155.6850	PP
NIAGARA FA	NEW YORK, STATE OF	KNAI216	156.1200	PP
NIAGARA FA	NEW YORK, STATE OF	KNAI216	159.1950	PP
NORTH COLL	NORTH COLLINS, TOWN OF	KNCE475	155.9250	PL
NORTH TONA	NEW YORK, STATE OF	KNAI216	155.6850	PP
PATCHOGUE	PATCHOGUE MEDFORD UNION FREE S	WSS374	155.2350	PS
PEEKSKILL	PEEKSKILL FIRE DEPT	KCP575	46.2600	PF
PHARSALIA	NEW YORK, STATE OF	WQC891	159.3000	PO
ROME	ROME, CITY OF	WNBJ901	451.0750	IW
RUSH	NEW YORK, STATE OF	WYZ365	155.8650	PL
SARDINIA	ERIE, COUNTY OF	WXU800	453.3750	PL
TROY	TROY, CITY OF	WNSD736	460.0750	PP
UTICA	ONEIDA, COUNTY OF	KVI531	155.9550	PL
VALHALLA	NEW YORK, STATE OF	WPFS619	173.0750	PP
WATKINS GL	NEW YORK, STATE OF	WQC889	159.3000	PO

Ohio

City	Licensee	Callsign	Freq	Sr.
	AKRON GENERAL MEDICAL CENTER	KFM417	155.4000	PS
	ALLIANCE COMMUNITY HOSPITAL	WNSF586	155.3400	PS
	BEAVER TOWNSHIP OF	KA68971	155.2800	PS
	BEAVER TOWNSHIP OF	KA68971	155.3400	PS
	CLEVELAND, CITY OF	KB63732	156.0150	PL
	COMMUNITY AMBULANCE INC	KYG703	155.2800	PS
	COMMUNITY AMBULANCE INC	KYG703	155.3400	PS
	ELMWOOD PLACE, VILLAGE OF	KDD936	158.7600	PL
	LICKING MEMORIAL HOSPITAL	KXV318	155.3400	PS
	LUCAS COUNTY EMS	KD9318	155.3400	PM
	LUCAS COUNTY EMS	KD9318	458.0250	PM
	LUCAS COUNTY EMS	KD9318	458.1250	PM
	LUCAS COUNTY EMS	KD9318	458.1750	PM
	LUCAS COUNTY EMS	KD9318	462.9500	PM
	LUCAS COUNTY EMS	KD9318	462.9750	PM
	LUCAS COUNTY EMS	KD9318	463.0000	PM
	LUCAS COUNTY EMS	KD9318	463.0250	PM
	LUCAS COUNTY EMS	KD9318	463.0500	PM
	LUCAS COUNTY EMS	KD9318	463.0750	PM
	LUCAS COUNTY EMS	KD9318	463.1000	PM
	LUCAS COUNTY EMS	KD9318	463.1250	PM
	LUCAS COUNTY EMS	KD9318	463.1500	PM
	LUCAS COUNTY EMS	KD9318	463.1750	PM
	PERRY, TOWNSHIP OF	KFZ831	33.8200	PF
	PERRY, TOWNSHIP OF	KFZ831	33.8400	PF
	PERRY, TOWNSHIP OF	KFZ831	460.5375	PF
	PERRY, TOWNSHIP OF	KRW474	460.5000	PP
	PERRY, TOWNSHIP OF	KRW474	465.0500	PP
	PERRY, TOWNSHIP OF	KRW474	465.4250	PP
	PERRY, TOWNSHIP OF	KRW474	465.4500	PP
	SUMMIT, COUNTY OF	KQY676	159.4200	PO

City	Licensee	Callsign	Freq	Sr.
	SUMMIT, COUNTY OF	KQY676	458.1000	PO
	WASHINGTON, TOWNSHIP OF	KXB710	154.2050	PF
	WASHINGTON, TOWNSHIP OF	KXB710	154.2500	PF
	WASHINGTON, TOWNSHIP OF	KXB710	154.3550	PF
ABERDEEN	ABERDEEN, VILLAGE OF	WNSC741	39.5800	PP
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	462.9500	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.0000	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.0250	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.0500	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.0750	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.1000	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.1250	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.1500	PM
BASCOM	SENECA COUNTY COMMISSIONERS	WSL498	463.1750	PM
BOWLING GR	BOWLING GREEN, CITY OF	KLO385	158.8800	PL
CASSTOWN	MIAMI EAST LOCAL SCHOOL DISTRI	WXP580	155.1600	PS
CHILLICOTH	OHIO, STATE OF	WNJM528	155.6550	PP
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	155.1600	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	155.4000	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	462.9750	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.0000	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.0250	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.0500	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.0750	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.1000	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.1250	PS
CLEVELAND	METRO HEALTH MEDICAL CENTER	WNCM763	463.1500	PS
CLEVELAND	MOUNT SINAI MEDICAL CENTER	WPHD671	453.0750	PM
CLEVELAND	MOUNT SINAI MEDICAL CENTER	WPHD671	458.0750	PM
COLUMBUS	PERRY, TOWNSHIP OF	KRW474	460.4500	PP
DELTA	DELTA, VILLAGE OF	KCW652	154.3100	PF
DUNCAN FAL	DUNCAN FALLS WAYNE TWNSHP VOL	KCP570	33.9800	PF
EAST LIVER	EAST LIVERPOOL, CITY OF	KQB864	39.4000	PP
FAIRFIELD	MERCY HOSPITAL	WNCH871	463.0500	PS
FAIRFIELD	MERCY HOSPITAL	WNCH871	463.0750	PS
FAIRFIELD	MERCY HOSPITAL	WNCH871	463.1000	PS
FAIRFIELD	MERCY HOSPITAL	WNCH871	463.1250	PS
FAIRFIELD	MERCY HOSPITAL	WNCH871	463.1500	PS
FRANKFORT	CONCORD, TOWNSHIP OF	WNCN664	154.9800	PL
INDEPENDEN	INDEPENDENCE CITY SCHOOLS	WQF242	155.2350	PS
LAKEWOOD	LAKEWOOD CITY SCHOOLS	WXT529	155.2350	PS
LANCASTER	OHIO, STATE OF	WQS486	45.0200	PP
LANCASTER	OHIO, STATE OF	WQS486	155.5800	PP
LANCASTER	OHIO, STATE OF	WQS486	155.6550	PP
LEETONIA	LEETONIA, VILLAGE OF	KQC504	39.6400	PP
LEETONIA	LEETONIA, VILLAGE OF	KQC504	151.2650	PP
LIMA	LIMA, CITY OF	WRZ656	155.3400	PS
LISBON	LISBON, CITY OF	WNCP945	39.5800	PP
MAUMEE	MAUMEE, CITY OF	WNKN961	153.9650	PL
MAUMEE	MAUMEE, CITY OF	WNKN961	155.9250	PL
NORWOOD	NORWOOD, CITY OF	KQB254	460.0750	PP
OXFORD	OXFORD, CITY OF	WNTY864	956.3562	IW
REPUBLIC	SENECA COUNTY COMMISSIONERS	WSL498	462.9500	PM
RICHFIELD	SUMMIT, COUNTY OF	KQY676	453.1000	PO
ROCK CREEK	MORGAN, TOWNSHIP OF	KWM799	154.1300	PF
ROCK CREEK	MORGAN, TOWNSHIP OF	KWM799	154.2050	PF
ROCK CREEK	MORGAN, TOWNSHIP OF	KWM799	154.2800	PF
SANDUSKY	FIRELANDS COMMUNITY HOSPITAL	KCR329	155.2800	PS
SIDNEY	SHELBY, COUNTY OF	KXA519	154.7550	PP
SIDNEY	SHELBY, COUNTY OF	KXA519	156.1500	PP
SULLIVAN	BLACK RIVER SCHOOL DISTRICT	WNCJ752	155.2350	PS
TRUMBULL T	TRUMBULL TOWNSHIP VOLUNTEER FI	KXF658	154.1300	PF
WADSWORTH	WADSWORTH, CITY OF	WNAG492	153.5900	IW
WADSWORTH	WADSWORTH, CITY OF	WNAG492	158.2050	IW
WHEELERSBU	PORTER, TOWNSHIP OF	KCR806	155.3400	PS
WOOSTER	WOOSTER, CITY OF	KQA876	155.3700	PP
WOOSTER	WOOSTER, CITY OF	KQA876	155.5500	PP
WOOSTER	WOOSTER, CITY OF	KQA876	155.7000	PP

Oklahoma

City	Licensee	Callsign	Freq	Sr.
	COTTON, COUNTY OF	KKR913	154.9500	PP
	MC CURTAIN MEMORIAL HOSPITAL	KRV278	155.3400	PS
	MIAMI, CITY OF	WNCQ250	154.7550	PP
	OKLAHOMA MEDICAL RESEARCH FOUN	WRX678	155.1600	PS
ADA	ADA, CITY OF	WNCF506	158.7300	PP
FOX	FOX GRAHAM VOLUNTEER FIRE DEPA	WNCQ228	153.8900	PF
OKLAHOMA C	OKLAHOMA, STATE OF	KAG206	453.4250	PL
SMITHVILLE	WATSON VOLUNTEER FIRE DEPT	WNSG234	154.4150	PF
TISHOMINGO	JOHNSTON, COUNTY OF	KKG688	155.4900	PP
TULSA	TULSA, CITY OF	KCE930	460.0250	PP
TULSA	TULSA, CITY OF	KCE930	460.2500	PP
TULSA	TULSA, CITY OF	KCE930	460.4000	PP

Oregon

City	Licensee	Callsign	Freq	Sr.
	CLARKES RURAL FIRE PROTECTION	KTB336	153.8900	PF
	CLARKES RURAL FIRE PROTECTION	KTB336	154.1900	PF
	CLARKES RURAL FIRE PROTECTION	KTB336	154.2200	PF
	CLARKES RURAL FIRE PROTECTION	KTB336	154.3250	PF
	CLOVERDALE RURAL FIRE PROTECTI	KXX429	154.2800	PF
	CLOVERDALE RURAL FIRE PROTECTI	KXX429	154.4150	PF
	DRAKES CROSSING RURAL FIRE PRO	KYG499	153.7700	PF
	DRAKES CROSSING RURAL FIRE PRO	KYG499	154.1600	PF
	LEBANON FIRE DISTRICT	WNSI542	460.6250	PF
	LEBANON FIRE DISTRICT	WNSI542	465.6250	PF
	LOWER UMPQUA HOSPITAL	KYL699	155.3400	PS
	LOWER UMPQUA HOSPITAL	KYL699	155.4000	PS
	MARION, COUNTY OF	KUB772	460.5000	PP
	MARION, COUNTY OF	KWQ709	33.0200	PS
	YAMHILL, COUNTY OF	KGP693	45.8800	PF
	YAMHILL, COUNTY OF	KGP693	46.1000	PF
	YAMHILL, COUNTY OF	KGP693	46.5000	PF
	YAMHILL, COUNTY OF	KGP693	154.2800	PF
ASTORIA	COLUMBIA MEMORIAL HOSPITAL	WYR655	155.3400	PS
COQUILLE	OREGON, STATE OF DEPT OF TRANS	WNTY880	954.7500	PH
COQUILLE	OREGON, STATE OF DEPT OF TRANS	WNTY881	958.3500	PH
COTTAGE GR	OREGON, STATE OF	WNTV830	957.4500	PP
COTTAGE GR	OREGON, STATE OF	WNTV830	958.4500	PP
COTTAGE GR	OREGON, STATE OF	WNTV830	958.9500	PP
COTTAGE GR	OREGON, STATE OF	WNTY741	955.2500	PP
DRAIN	OREGON, STATE OF	WNTB400	953.8500	PP
EAGLE POIN	EAGLE POINT, CITY OF	KVG853	154.9800	PL
EUGENE	LANE RURAL FIRE PROTECTION DIS	KUV675	154.2800	PF
EUGENE	OREGON, STATE OF	WNTV829	959.6500	PP
FAIRBANKS	OREGON, STATE OF	WNTY871	954.2000	PP
FALL CREEK	OREGON, STATE OF	WNTY738	955.3500	PP
GRANTS PAS	JOSEPHINE COUNTY	KYF333	46.5800	PL
GRANTS PAS	JOSEPHINE COUNTY	KYF333	155.1450	PL
HERMISTON	HERMISTON, CITY OF	KA69944	463.0000	PS
HERMISTON	HERMISTON, CITY OF	KA69944	463.0500	PS
HERMISTON	HERMISTON, CITY OF	KA69944	463.0750	PS
HERMISTON	HERMISTON, CITY OF	KA69944	463.1500	PS
HERMISTON	HERMISTON, CITY OF	KA69944	463.1750	PS
LA GRANDE	LA GRANDE, CITY OF	KOB617	155.4300	PP
LA GRANDE	LA GRANDE, CITY OF	KOB617	155.7000	PP
LA GRANDE	LA GRANDE, CITY OF	KOB617	155.8500	PP
LEXINGTON	OREGON, STATE OF	WNTX653	957.1500	PL
NEWBERG	NEWBURG, CITY OF	KWJ435	154.2800	PF
OAKRIDGE	OREGON, STATE OF	WNTY740	954.8500	PP
SISTERS	SISTERS, CITY OF	WRV721	155.0250	PL
SODAVILLE	LEBANON FIRE DISTRICT	WNSI542	460.6250	PF
SPRINGFIEL	LANE, COUNTY OF	WNJS884	154.9950	PH
SPRINGFIEL	LANE, COUNTY OF	WNJS884	159.1350	PH
SWEET HOME	SWEET HOME, CITY OF	KOB357	155.0100	PP
WALTON	OREGON, STATE OF	WNTY739	956.0500	PP
WASCO	OREGON, STATE OF	WNTY870	957.8000	PP

Pennsylvania

City	Licensee	Callsign	Freq	Sr.
	CHESTER, COUNTY OF	KVN537	158.8800	PL
	CITIZENS AMBULANCE SERVICE INC	WNSF577	155.2650	PS
	COLLINGDALE VOL FIRE CO 1	WNCD448	46.3800	PF
	COLLINGDALE VOL FIRE CO 1	WNCD448	46.4200	PF
	FRANKLIN, COUNTY OF	WPGZ854	465.1000	PP
	FRANKLIN, COUNTY OF	WPGZ854	465.3000	PP
	GOULDSBORO VFD INC	KIL388	155.2950	PS
	GOULDSBORO VFD INC	KIL388	155.3550	PS
	GOULDSBORO VOLUNTEER FIRE COMP	KVM325	154.3100	PF
	GOULDSBORO VOLUNTEER FIRE COMP	KVM325	154.3250	PF
	GOULDSBORO VOLUNTEER FIRE COMP	KVM325	460.6000	PF
	HOLLIDAYSBURG, CITY OF	WRW725	46.1200	PF
	INDIANA, COUNTY OF	KXQ916	45.4000	PL
	INDIANA, COUNTY OF	KXQ916	45.6000	PL
	KISKIMINETAS TOWNSHIP FIRE DEP	KA73070	33.5200	PF
	KISKIMINETAS TOWNSHIP FIRE DEP	KA73070	33.6000	PF
	KISKIMINETAS TOWNSHIP FIRE DEP	KA73070	33.6400	PF
	KISKIMINETAS TOWNSHIP FIRE DEP	KA73070	33.7000	PF
	KISKIMINETAS TOWNSHIP FIRE DEP	KA73070	33.9400	PF
	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
	NORTH MOUNTAIN FIRE CO	WNSG979	46.0600	PF
	NORTH MOUNTAIN FIRE CO	WNSG979	46.1200	PF
	WILKINSBURG EMERGENCY MEDICAL	WSV968	155.2050	PS
	WILKINSBURG EMERGENCY MEDICAL	WSV968	155.3400	PS
	WILKINSBURG EMERGENCY MEDICAL	WSV968	155.4000	PS
	WILLIAMSPORT, CITY OF	WNNE908	857.4875	YP
	WILLIAMSPORT, CITY OF	WNNE908	858.4875	YP
	WILLIAMSPORT, CITY OF	WNNE908	859.4875	YP
	WILLIAMSPORT, CITY OF	WNNE908	860.4875	YP
BRADFORD	AREA TRANSPORTATION AUTHORITY	WNSG943	45.4400	PL
CAMMAL	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
CHAMBERSBU	FRANKLIN, COUNTY OF	WPGZ854	460.1000	PP
CHAMBERSBU	FRANKLIN, COUNTY OF	WPGZ854	460.3000	PP
COLLINGDAL	COLLINGDALE VOL FIRE CO 1	WNCD448	46.3800	PF
COLLINGDAL	COLLINGDALE VOL FIRE CO 1	WNCD448	46.4200	PF
CONVENTRYV	CHESTER, COUNTY OF	WPHC512	855.4875	YP
CONVENTRYV	CHESTER, COUNTY OF	WPHC512	855.7375	YP
CONVENTRYV	CHESTER, COUNTY OF	WPHC512	855.9875	YP
CONYNGHAM	CONYNGHAM, BOROUGH OF	WNSG906	153.8150	PL
COUDERSPOR	AREA TRANSPORTATION AUTHORITY	WNSG944	45.4000	PL
COUDERSPOR	AREA TRANSPORTATION AUTHORITY	WNSG944	45.4400	PL
EAGLEVILLE	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
EAGLEVILLE	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
ELIMSPORT	PA EMERGENCY MANAGEMENT AGENCY	KNEB968	169.5000	PL
ELKINS PAR	CHELTENHAM, TOWNSHIP OF	WNCB992	45.9200	PS
ELKINS PAR	CHELTENHAM, TOWNSHIP OF	WNCB992	45.9600	PS
EMPORIUM	AREA TRANSPORTATION AUTHORITY	WNSF999	45.4400	PL
FIELD STAT	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
FORKSVILLE	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
GLADWYNE	MONTGOMERY, COUNTY OF	WNNY750	851.3625	YP
GLADWYNE	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
GLADWYNE	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
GRADYVILLE	CHESTER, COUNTY OF	WPHC515	859.2625	YP
GRADYVILLE	CHESTER, COUNTY OF	WPHC515	860.2625	YP
GREEN LANE	MONTGOMERY, COUNTY OF	WNNY750	851.3625	YP
GREEN LANE	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
GREEN LANE	MONTGOMERY, COUNTY OF	WNNY750	855.9375	YP
GREEN LANE	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
GREENSBURG	HEMPFIELD, TOWNSHIP OF	KDZ405	33.7000	PF
HARTLETON	PA EMERGENCY MANAGEMENT AGENCY	KNEB968	169.5000	PL
HATBORO	HATBORO, BOROUGH OF	WNCU447	156.2400	PH
HILLSGROVE	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
JENNERS	JENNERS, TOWNSHIP OF	WPHB830	37.2600	PL
LAIRDSVILL	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
LANDENBERG	CHESTER, COUNTY OF	WPHC514	855.4875	YP
LANDENBERG	CHESTER, COUNTY OF	WPHC514	855.7375	YP
LANDENBERG	CHESTER, COUNTY OF	WPHC514	855.9875	YP
LICK RUN	PA EMERGENCY MANAGEMENT AGENCY	KNEB968	169.5000	PL
LIMESTONE	UNION, COUNTY OF	KGF423	46.0600	PF
LIMESTONE	UNION, COUNTY OF	KGF423	46.4000	PF
LINNTOWN	PA EMERGENCY MANAGEMENT AGENCY	KNEB968	169.5000	PL
LOWER POTT	MONTGOMERY, COUNTY OF	WNNY750	851.3625	YP
LOWER POTT	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
LOWER POTT	MONTGOMERY, COUNTY OF	WNNY750	855.9375	YP
LOWER POTT	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
MANHEIM	MANHEIM, BOROUGH OF	WNSB283	158.9550	PL
MEYERSDALE	MEYERSDALE AREA AMBULANCE ASSN	WSY240	33.1000	PS
MONROEVILL	MONROEVILLE, MUNICIPALITY OF	WNSF436	155.4300	PP
MOUNT HOLL	MOUNT HOLLY SPRINGS, BORO OF	KAX852	46.5400	PL
NATRONA HE	HARRISON, TOWNSHIP OF	WNCR995	156.1650	PH
NORDMONT	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
NORTH BRAD	TURTLE CREEK, BOROUGH OF	KYE236	155.6850	PP
NORTH WALE	MONTGOMERY, COUNTY OF	WNNY750	851.3625	YP
NORTH WALE	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
NORTH WALE	MONTGOMERY, COUNTY OF	WNNY750	855.9375	YP
NORTH WALE	MONTGOMERY, COUNTY OF	WNNY750	856.7375	YP
OLD FORGE	OLD FORGE, BOROUGH OF	WNSG206	453.4750	PL
OREGON HIL	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
OVERTON	PA EMERGENCY MANAGEMENT AGENCY	WPHF933	169.4500	PL
PHILADELPH	SOUTHEASTERN PENNSYLVANIA TRAN	WNTY306	1975.0000	PL
RALSTON	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
REHRERSBUR	WESTERN BERKS FIRE ZONE 3	KGG557	33.9000	PF
REHRERSBUR	WESTERN BERKS FIRE ZONE 3	KGG557	33.9400	PF
ROARING BR	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
ROBINSON T	MONTOUR TRAIL COUNCIL	WPGZ425	151.3700	PO
ROBINSON T	MONTOUR TRAIL COUNCIL	WPGZ425	159.2250	PO
SEWICKLEY	ALEPPO, TOWNSHIP OF	WNBM917	155.4900	PP
SOUTH MOUN	PENNSYLVANIA, COMMONWEALTH OF	KWM652	46.5200	PL
SOUTH WHIT	LEHIGH, COUNTY OF	WBE413	154.7700	PP
SOUTH WHIT	LEHIGH, COUNTY OF	WBE413	154.8300	PP
SOUTH WHIT	LEHIGH, COUNTY OF	WBE413	154.8900	PP
STEAM VALL	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
TAMAQUA	TAMAQUA, BOROUGH OF	KGC516	155.6100	PP
TAMAQUA	TAMAQUA, BOROUGH OF	KGF805	46.5000	PF
TIVOLI	PA EMERGENCY MANAGEMENT AGENCY	WPHF929	169.4500	PL
UPPER DUBL	MONTGOMERY, COUNTY OF	WNNY750	851.3625	YP
UPPER DUBL	MONTGOMERY, COUNTY OF	WNNY750	855.2375	YP
UPPERSTRAS	FRANKLIN, COUNTY OF	WPGZ854	460.1000	PP
UPPERSTRAS	FRANKLIN, COUNTY OF	WPGZ854	460.3000	PP
WAYNE	CHESTER, COUNTY OF	WPHC513	859.2625	YP
WAYNE	CHESTER, COUNTY OF	WPHC513	860.2625	YP
WEIKERT	PA EMERGENCY MANAGEMENT AGENCY	KNEB968	169.5000	PL
WEST SUNBU	CONCORD, TOWNSHIP OF	WNSE902	155.7150	PL
WHITE PINE	PA EMERGENCY MANAGEMENT AGENCY	WPHF937	169.4500	PL

Rhode Island

City	Licensee	Callsign	Freq	Sr.
	CENTRAL COVENTRY FIRE DISTRICT	WNSC440	46.4000	PF
CRANSTON	RHODE ISLAND, STATE OF	WJB65	1895.0000	PL
JOHNSTON	RHODE ISLAND, STATE OF	WJB69	1955.0000	PL
PROVIDENCE	PROVIDENCE, CITY OF	KCB660	153.8300	PF

South Carolina

City	Licensee	Callsign	Freq	Sr.
	GREENSVIILE, COUNTY OF	WNSA587	154.5700	IB
	GREENVILLE, COUNTY OF	KS7184	460.5000	PP
	GREENVILLE, COUNTY OF	KS7184	465.2500	PP
	MONSANTO COMPANY	WSW706	154.4300	PF
CAMDEN	CAMDEN, CITY OF	KEC405	155.3100	PP
COLUMBIA	COLUMBIA, CITY OF	KSM229	46.5800	PL
EDGEFIELD	TRENTON, TOWN OF	WNCV620	155.8350	PL
FLORENCE	SOUTH CAROLINA, STATE OF	WNCJ788	453.7250	PL
GREENVILLE	GREENVILLE, COUNTY OF	KWI873	460.1250	PP
GREENVILLE	GREENVILLE, COUNTY OF	KWI873	460.2500	PP
GREENVILLE	GREENVILLE, COUNTY OF	KWI874	460.5000	PP
GREENWOOD	MONSANTO COMPANY	WSW706	154.4300	PF
LANCASTER	LANCASTER, CITY OF	KKG572	154.3700	PF
LANCASTER	LANCASTER, CITY OF	KKG572	159.0450	PF
UNION	UNION, CITY OF	KIM942	153.5900	IW

City	Licensee	Callsign	Freq	Sr.
UNION	UNION, CITY OF	KIM942	158.1300	IW
WALHALLA	OCONEE, COUNTY OF	KSN285	45.4800	PL

South Dakota

City	Licensee	Callsign	Freq	Sr.
SPEARFISH	SPEARFISH, CITY OF	KRC460	39.4000	PP
SPEARFISH	SPEARFISH, CITY OF	WNTY922	956.3062	IW

Tennessee

City	Licensee	Callsign	Freq	Sr.
	CARROLL COUNTY RESCUE SQUAD IN	WNQK844	155.2050	PS
	GREEN, COUNTY OF	KXX575	45.3600	PL
	HAWKINS COUNTY OF	KA59027	154.0100	PF
	HAWKINS COUNTY OF	KA59027	154.4150	PF
	JEFFERSON CITY, CITY OF	WQD204	154.2800	PF
BLOUNTVILL	TRI CITY AIRPORT COMMISSION	WPHA746	854.9625	GP
BRENTWOOD	BRENTWOOD, CITY OF	WZC712	460.5000	PP
FALL BRANC	TENNESSEE, STATE OF	WQF408	42.2800	PP
HUNTINGDON	CARROLL COUNTY RESCUE SQUAD IN	WNQK844	155.4000	PS
LA FAYETTE	MACON, COUNTY OF	KVM296	155.2950	PS
LAKEVIEW	HAWKINS COUNTY OF	KFF501	154.0100	PF
LAKEVIEW	HAWKINS COUNTY OF	KFF501	154.4150	PF
LAWRENCEBU	CROCKETT GENERAL HOSPITAL	KWX597	155.3400	PS
PARIS	PARIS, CITY OF	KWL618	465.4000	PP
RIDGETOP	RIDGETOP, CITY OF	WNSF361	154.4000	PF
SHADY VALL	WASHINGTON, COUNTY OF	WPHB747	169.5000	PL
WILLS	WASHINGTON, COUNTY OF	WPHB747	169.5000	PL

Texas

City	Licensee	Callsign	Freq	Sr.
	CAMERON, COUNTY OF	WPHB826	155.7150	PL
	GONZALEX, COUNTY OF	KB70068	158.8500	PP
	GROVES, CITY OF	WPHH356	858.2625	GP
	HUNTSVILLE MEMORIAL HOSPITAL	WNCJ751	155.1750	PS
	JOHNSON, COUNTY OF	KYQ518	153.9200	PL
	JOHNSON, COUNTY OF	KYQ518	158.7450	PL
	LUBBOCK, CITY OF	WZC626	453.0500	PF
	LUBBOCK, CITY OF	WZC626	453.1000	PF
	LUBBOCK, CITY OF	WZC626	453.1500	PF
	LUBBOCK, CITY OF	WZC626	458.0500	PF
	LUBBOCK, CITY OF	WZC626	458.1000	PF
	LUBBOCK, CITY OF	WZC626	458.1500	PF
	MOUNT PLEASANT, CITY OF	WPHH653	154.1000	PL
	MOUNT PLEASANT, CITY OF	WPHH653	158.8650	PL
	ROPESVILLE, CITY OF	WPHB828	453.6125	PL
	TITUS, COUNTY OF	KNHJ284	154.7550	PP
	TITUS, COUNTY OF	KNHJ284	154.9500	PP
	TITUS, COUNTY OF	KNHJ284	156.1500	PP
	TITUS, COUNTY OF	KNHJ284	158.7300	PP
	TITUS, COUNTY OF	KNHJ284	158.7900	PP
	TITUS, COUNTY OF	KNHJ284	159.0300	PP
	WICHITA, COUNTY OF	KA73330	153.8600	PL
	WICHITA, COUNTY OF	KXX527	154.7250	PP
	WICHITA, COUNTY OF	WSW675	154.2800	PF
	WICHITA, COUNTY OF	WSW675	154.3100	PF
AUSTIN	TRAVIS, COUNTY OF	WPHC785	173.3900	PL
BANDERA	EDWARDS UNDERGROUND WATER DIST	WPGZ921	170.3000	PL
BANDERA	EDWARDS UNDERGROUND WATER DIST	WPGZ925	170.3000	PL
BANDERA	EDWARDS UNDERGROUND WATER DIST	WPGZ929	170.3000	PL
BIG SPRING	BIG SPRING, CITY OF	WPHB778	155.7150	PL
BOERNE	EDWARDS UNDERGROUND WATER DIST	WPGZ929	170.3000	PL
BURLESON	BURLESON, CITY OF	WNCT282	453.1000	PP
BURNET	BURNET, CITY OF	WPHF503	153.4550	IW
BURNET	BURNET, CITY OF	WPHF503	158.2650	IW
CAMP WOOD	EDWARDS UNDERGROUND WATER DIST	WPGZ838	170.2750	PL
CASTROVILL	EDWARDS UNDERGROUND WATER DIST	WPGZ917	170.2750	PL
COLLEGE ST	TEXAS, STATE OF	WPHE516	856.9375	YP
COLLEGE ST	TEXAS, STATE OF	WPHE516	857.9625	YP
COLLEGE ST	TEXAS, STATE OF	WPHE516	858.9625	YP
COLLEGE ST	TEXAS, STATE OF	WPHE516	859.4375	YP
COLLEGE ST	TEXAS, STATE OF	WPHE516	859.9375	YP
COMMERCE	COMMERCE, CITY OF	KZC621	154.9500	PP
COMMERCE	COMMERCE, CITY OF	KZC621	155.5950	PP
COMMERCE	COMMERCE, CITY OF	KZC621	158.8050	PP
CONCAN	EDWARDS UNDERGROUND WATER DIST	WPGZ905	170.3000	PL
CONCAN	EDWARDS UNDERGROUND WATER DIST	WPGZ909	170.2250	PL
D HANIS	EDWARDS UNDERGROUND WATER DIST	WPGZ909	170.2250	PL
D HANIS	EDWARDS UNDERGROUND WATER DIST	WPGZ913	170.2250	PL
DENISON	DENISON, CITY OF	WNTY720	928.2812	PL
DENISON	DENISON, CITY OF	WNTY720	952.2812	PL
DIVERSION	EDWARDS UNDERGROUND WATER DIST	WPGZ921	170.2750	PL
EVANT	TEXAS, STATE OF	KFN544	159.2700	PO
FAIR OAKS	WACO, CITY OF	WPFS755	453.8250	PL
FORT WORTH	ALL SAINTS EPISCOPAL HOSPITAL	KLV903	155.3400	PS
GEORGETOWN	GEORGETOWN INDEPENDENT SCHOOL	WNCT219	155.2050	PS
GROVES	GROVES, CITY OF	WPHH356	858.2625	GP
HEMPSTEAD	MONAVILLE, CITY OF	WNSB369	154.2800	PF
HICO	HICO, CITY OF	WNNW354	154.0400	PP
HICO	HICO, CITY OF	WNNW354	154.9500	PP
HICO	HICO, CITY OF	WNNW354	155.0700	PP
HICO	HICO, CITY OF	WNNW354	158.8500	PP
HIGHLANDS	HARRIS COUNTY WATER CONTROL &	KSL498	155.7450	PL
HILLSBORO	HILL REGIONAL HOSPITAL	WYV864	152.0075	PS
HILLSBORO	HILL REGIONAL HOSPITAL	WYV864	155.3400	PS
HONDO	EDWARDS UNDERGROUND WATER DIST	WPGZ917	170.2250	PL
HONDO	EDWARDS UNDERGROUND WATER DIST	WPGZ917	170.2750	PL
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG769	866.0125	GF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG769	866.5125	GF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG769	867.0125	GF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG769	867.5125	GF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG769	868.0125	GF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.1875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.2625	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.2875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.6625	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.6875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	866.9125	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	867.1625	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	867.1875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	867.4125	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	867.6875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	868.1625	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	868.1875	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	868.4125	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	868.4375	YF
HOUSTON	HOUSTON INDEPENDENT SCHOOL DIS	WPHG773	868.7000	YF
KNIPPA	EDWARDS UNDERGROUND WATER DIST	WPGZ905	170.3000	PL
KNIPPA	EDWARDS UNDERGROUND WATER DIST	WPGZ909	170.3000	PL
KNOX CITY	KNOX COUNTY HOSPITAL DISTRICT	WXF867	155.3400	PS
LA JOYA	LA JOYA, CITY OF	WNSE927	154.1900	PF
LA MARQUE	LA MARQUE, CITY OF	KEU908	155.7600	PL
LEAKEY	EDWARDS UNDERGROUND WATER DIST	WPGZ838	170.2750	PL
LEAKEY	EDWARDS UNDERGROUND WATER DIST	WPGZ842	170.2750	PL
LEAKEY	EDWARDS UNDERGROUND WATER DIST	WPGZ929	170.2750	PL
MARQUEZ	WACO, CITY OF	WPFS755	453.8250	PL
MEDINA	EDWARDS UNDERGROUND WATER DIST	WPGZ921	170.2750	PL
MIDLAND	MIDLAND, CITY OF	KNCE392	158.7750	PL
MOUNT PLEA	MOUNT PLEASANT, CITY OF	WPHH653	154.1000	PL
MOUNT PLEA	TITUS, COUNTY OF	KNHJ284	154.7550	PP
MOUNT PLEA	TITUS, COUNTY OF	KNHJ284	155.3700	PP
MOUNT PLEA	TITUS, COUNTY OF	KNHJ284	158.7900	PP
NACOGDOCHE	NACOGDOCHES MEDICAL CENTER HOS	KNCF756	155.2200	PS
NACOGDOCHE	NACOGDOCHES MEDICAL CENTER HOS	KNCF756	155.3400	PS
NEDERLAND	NEDERLAND, CITY OF	WPHE665	854.9875	GP
ODESSA	ECTOR, COUNTY OF	WNLW771	453.2750	PL
ODESSA	ODESSA, CITY OF	KXM806	453.1000	PL
PALESTINE	ELKHART, CITY OF	KRA427	158.8350	PL
QUITAQUE	TEXAS, STATE OF	KNDL906	151.3400	PO
QUITAQUE	TEXAS, STATE OF	KNDL906	151.4150	PO
QUITAQUE	TEXAS, STATE OF	WNXN802	151.2650	PO

City	Licensee	Callsign	Freq	Sr.
QUITAQUE	TEXAS, STATE OF	WNXN802	151.3400	PO
QUITAQUE	TEXAS, STATE OF	WNXN802	151.3550	PO
QUITAQUE	TEXAS, STATE OF	WNXN802	151.4000	PO
QUITAQUE	TEXAS, STATE OF	WNXN802	151.4150	PO
QUITAQUE	TEXAS, STATE OF	WNXN802	159.4500	PO
RIO FRIO	EDWARDS UNDERGROUND WATER DIST	WPGZ842	170.2750	PL
ROCK SPRIN	EDWARDS UNDERGROUND WATER DIST	WPGZ838	170.2750	PL
ROCK SPRIN	EDWARDS UNDERGROUND WATER DIST	WPGZ929	170.2750	PL
SABINAL	EDWARDS UNDERGROUND WATER DIST	WPGZ909	170.2250	PL
SABINAL	EDWARDS UNDERGROUND WATER DIST	WPGZ913	170.2250	PL
SAN ANTONI	EDWARDS UNDERGROUND WATER DIST	WPGZ842	170.2750	PL
SAN GERONI	EDWARDS UNDERGROUND WATER DIST	WPGZ929	170.3000	PL
SUGAR LAND	SUGAR LAND, CITY OF	KTY957	154.2800	PF
TALCO	TALCO, CITY OF	WPGX863	153.4550	IW
TARPLEY	EDWARDS UNDERGROUND WATER DIST	WPGZ921	170.3000	PL
TARPLEY	EDWARDS UNDERGROUND WATER DIST	WPGZ925	170.3000	PL
TYLER	SMITH, COUNTY OF	WNPF575	155.9400	PL
UTOPIA	EDWARDS UNDERGROUND WATER DIST	WPGZ913	170.2250	PL
UTOPIA	EDWARDS UNDERGROUND WATER DIST	WPGZ921	170.3000	PL
UVALDE	EDWARDS UNDERGROUND WATER DIST	WPGZ905	170.3000	PL
VANDERPOOL	EDWARDS UNDERGROUND WATER DIST	WPGZ842	170.2750	PL
WACO	AMERICAN MEDICAL TRANSPORT OF	WNSC415	462.9750	PS
WICHITA FA	WICHITA, COUNTY OF	KXX527	155.3700	PP
WILLIS	WILLIS, CITY OF	WNCP939	158.7900	PP
WINK	WINK, CITY OF	WNCG501	154.9800	PL

Utah

	TREMONTON, CITY OF	WNSB374	154.1450	PF
MIDVALE	SALT LAKE, COUNTY OF	WPAF412	453.8750	PL
PROVO	UTAH, STATE OF	WCW81	1925.0000	PL
SALT LAKE	SALT LAKE, COUNTY OF	WPAF412	453.5750	PL
SALT LAKE	SALT LAKE, COUNTY OF	WPAF412	453.8750	PL
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	462.9500	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	462.9750	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.0000	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.0250	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.0500	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.0750	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.1000	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.1250	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.1500	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.1600	PM
SALT LAKE	SALT LAKE, COUNTY OF	WRW716	463.1750	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	462.9500	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	462.9750	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.0000	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.0250	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.0500	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.0750	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.1000	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.1250	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.1500	PM
WEST VALLE	SALT LAKE, COUNTY OF	WRW716	463.1750	PM

Virginia

	ARLINGTON, COUNTY OF	KR6048	453.6000	PP
	ARLINGTON, COUNTY OF	KR6048	458.6000	PP
	BLAND, COUNTY OF	KWT748	39.5000	PL
	BLAND, COUNTY OF	KWT748	45.3200	PL
	BLAND, COUNTY OF	KWT748	155.9550	PL
	GLOUCESTER, COUNTY OF	WNPM503	460.1250	PP
	GLOUCESTER, COUNTY OF	WNPM503	465.1250	PP
	MANASSAS, CITY OF	WPGX743	866.0125	GF
	MANASSAS, CITY OF	WPGX743	866.5125	GF
	MANASSAS, CITY OF	WPGX743	867.0125	GF
	MANASSAS, CITY OF	WPGX743	867.5125	GF
	MANASSAS, CITY OF	WPGX743	868.0125	GF
	MANASSAS, CITY OF	WPGX746	866.0875	YF
	MANASSAS, CITY OF	WPGX746	866.1125	YF
	MANASSAS, CITY OF	WPGX746	867.8750	YF
	MANASSAS, CITY OF	WPGX746	868.4000	YF
	MANASSAS, CITY OF	WPGX746	868.4250	YF
	MT CROSS VOLUNTEER FIRE DEPT	WNSI454	153.9500	PF
	ROCKBRIDGE, COUNTY OF	KNGS323	39.5000	PL
	ROCKBRIDGE, COUNTY OF	KNGS323	45.4800	PL
	ROCKBRIDGE, COUNTY OF	KNGS323	453.5250	PL
	STAFFORD, COUNTY OF	WII498	492.1125	PL
	STAFFORD, COUNTY OF	WII498	493.6625	PL
ABINGDON	WASHINGTON, COUNTY OF	WPHB747	169.5000	PL
ABINGDON	WASHINGTON, COUNTY OF	WPHB747	170.2500	PL
ABINGDON	WASHINGTON, COUNTY OF	WPHB747	170.2750	PL
ARLINGTON	ARLINGTON, COUNTY OF	WNCS200	453.1000	PP
CEDAR SPRI	SMYTH, COUNTY OF	WNAU992	169.5000	PL
DUMFRIES	MANASSAS, CITY OF	WPGX746	866.0875	YF
DUMFRIES	MANASSAS, CITY OF	WPGX746	866.1125	YF
DUMFRIES	MANASSAS, CITY OF	WPGX746	867.8750	YF
DUMFRIES	MANASSAS, CITY OF	WPGX746	868.4000	YF
DUMFRIES	MANASSAS, CITY OF	WPGX746	868.4250	YF
GLOUCESTER	GLOUCESTER, COUNTY OF	WNPM503	460.4750	PP
GREEN COVE	WASHINGTON, COUNTY OF	WPHB747	169.5000	PL
HIGH KNOB	VIRGINIA, COMMONWEALTH OF	KIC368	159.1650	PP
KING GEORG	KING GEORGE, COUNTY OF	WYU970	39.5000	PL
LACROSSE	LACROSSE, TOWN OF	WNCP526	39.8000	PP
MARION	SMYTH, COUNTY OF	WNAU992	170.2500	PL
MARION	SMYTH, COUNTY OF	WNAU992	170.2750	PL
NEBO	SMYTH, COUNTY OF	WNAU992	169.5000	PL
POWELL MOU	VIRGINIA, COMMONWEALTH OF	KIC368	159.1650	PP
RURAL RETR	SMYTH, COUNTY OF	WNAU992	169.5000	PL
RUSTBURG	CAMPBELL, COUNTY OF	WPHD676	45.2800	PL
SALTVILLE	SMYTH, COUNTY OF	WNAU992	169.5000	PL
STAFFORD	STAFFORD, COUNTY OF	WII498	489.1125	PL
STAFFORD	STAFFORD, COUNTY OF	WII498	490.6625	PL
SUGAR GROV	SMYTH, COUNTY OF	WNAU992	169.5000	PL
SUGAR MOUN	VIRGINIA, COMMONWEALTH OF	KIC368	159.0000	PP
WOODBRIDGE	MANASSAS, CITY OF	WPGX746	866.0875	YF
WOODBRIDGE	MANASSAS, CITY OF	WPGX746	866.1125	YF
WOODBRIDGE	MANASSAS, CITY OF	WPGX746	867.8750	YF
WOODBRIDGE	MANASSAS, CITY OF	WPGX746	868.4000	YF
WOODBRIDGE	MANASSAS, CITY OF	WPGX746	868.4250	YF

Vermont

	ORANGE, COUNTY OF	WQI237	460.4500	PP
	ORANGE, COUNTY OF	WQI237	460.5000	PP
	ORANGE, COUNTY OF	WQI237	465.0250	PP
	SOUTHWESTERN NH DISTRICT FIRE	WPHC983	153.8300	PF
BENNINGTON	BENNINGTON, COUNTY OF	KLL714	155.5800	PP
BURLINGTON	VERMONT, STATE OF	KUL729	460.2750	PP
CASTLETON	CASTLETON, TOWN OF	KSU585	460.5000	PP
FLETCHER	FLETCHER, TOWN OF	KD30882	156.1650	PH
READING	READING, TOWN OF	WYV277	46.0800	PF
RUTLAND	MARBLE VALLEY REGIONAL TRANSIT	KNHR986	155.9850	PL
SAINT JOHN	SAINT JOHNSBURY, TOWN OF	WNCE423	154.1000	PL
SAINT JOHN	WATERFORD, TOWN OF	WNSC739	156.1950	PH
STARKSBORO	STARKSBORO, TOWN OF	KXV558	155.8050	PL
WEST RUTLA	MARBLE VALLEY REGIONAL TRANSIT	KNHR986	155.9850	PL
WEST RUTLA	MARBLE VALLEY REGIONAL TRANSIT	KNHR986	158.8200	PL
WEST RUTLA	WEST RUTLAND, TOWN OF	WNSB404	151.1150	PH

Washington

	CHELAN DOUGLAS COUNTY OF	WYE420	155.1600	PS
	COLUMBIA COUNTY FIRE DISTRICT	WRZ647	154.1900	PF
	COWLITZ COUNTY FIRE DISTRICT 2	KA59009	155.2200	PS
	COWLITZ COUNTY FIRE DISTRICT 2	KA59009	155.3400	PS
	FRANKLIN COUNTY FIRE PROTECTIO	KDB384	154.1900	PF
	KITSAP COUNTY OF	KYF348	155.3400	PS
	OKANOGAN COUNTY FIRE PROTECTIO	KRZ349	46.1000	PF

City	Licensee	Callsign	Freq	Sr.
	OKANOGAN, COUNTY OF	KB66151	154.4450	PF
	PACIFIC, COUNTY OF	WRX665	154.1900	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	153.8300	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	153.8750	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	154.1450	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	154.1900	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	154.2200	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	460.6000	PF
	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	465.6000	PF
	WALLA WALLA, COUNTY OF	KTB243	155.0550	PL
	WALLA WALLA, COUNTY OF	KTB243	155.7450	PL
BREMERTON	KITSAP COUNTY OF	KYF348	155.2800	PS
BREMERTON	KITSAP COUNTY OF	KYF348	155.3400	PS
COLBERT	SPOKANE COUNTY FIRE DISTRICT 4	WNKI993	460.6000	PF
COLVILLE	COLVILLE, CITY OF	KNIU705	154.4000	PF
GOLDENDALE	KLICKITAT COUNTY FIRE PROTECTI	KDV391	153.7700	PF
GOLDENDALE	KLICKITAT COUNTY FIRE PROTECTI	KDV391	154.1300	PF
NORTH BEND	KING, COUNTY OF	WPHD308	866.3625	YF
NORTH BEND	KING, COUNTY OF	WPHD308	866.3875	YF
NORTH BEND	KING, COUNTY OF	WPHD308	866.9375	YF
NORTH BEND	KING, COUNTY OF	WPHD308	866.9625	YF
NORTH BEND	KING, COUNTY OF	WPHD308	867.3375	YF
NORTH BEND	KING, COUNTY OF	WPHD308	867.4375	YF
NORTH BEND	KING, COUNTY OF	WPHD308	867.8375	YF
NORTH BEND	KING, COUNTY OF	WPHD308	867.8625	YF
NORTH BEND	KING, COUNTY OF	WPHD308	868.4250	YF
NORTH BEND	KING, COUNTY OF	WPHD308	868.4500	YF
NORTH BEND	KING, COUNTY OF	WPHD308	868.7000	YF
NORTH BEND	KING, COUNTY OF	WPHD308	868.7250	YF
PLYMOUTH	OREGON, STATE OF	WNTX651	953.5500	PL
PLYMOUTH	OREGON, STATE OF	WNTX652	952.1562	PL
PORT ANGEL	CLALLAM COUNTY RURAL FIRE PROT	KNEM994	154.1750	PF
PORT ANGEL	CLALLAM COUNTY RURAL FIRE PROT	KNEM994	154.2200	PF
ROYAL CITY	GRANT COUNTY FIRE DISTRICT 11	WZX949	154.3250	PF
SEATTLE	KING, COUNTY OF	WPHD308	866.3625	YF
SEATTLE	KING, COUNTY OF	WPHD308	866.3875	YF
SEATTLE	KING, COUNTY OF	WPHD308	866.9375	YF
SEATTLE	KING, COUNTY OF	WPHD308	866.9625	YF
SEATTLE	KING, COUNTY OF	WPHD308	867.3375	YF
SEATTLE	KING, COUNTY OF	WPHD308	867.4375	YF
SEATTLE	KING, COUNTY OF	WPHD308	867.8375	YF
SEATTLE	KING, COUNTY OF	WPHD308	867.8625	YF
SEATTLE	KING, COUNTY OF	WPHD308	868.4250	YF
SEATTLE	KING, COUNTY OF	WPHD308	868.4500	YF
SEATTLE	KING, COUNTY OF	WPHD308	868.7000	YF
SEATTLE	KING, COUNTY OF	WPHD308	868.7250	YF

Wisconsin

City	Licensee	Callsign	Freq	Sr.
	MEMORIAL HOSPITAL ASSOCIATION	WSY245	155.3400	PS
	NEW RICHMOND, CITY OF	WSW665	154.3250	PF
	NEW RICHMOND, CITY OF	WSW665	154.4000	PF
	SAWYER, COUNTY OF	KTV630	154.8600	PP
	SAWYER, COUNTY OF	KTV630	155.3700	PP
	SAWYER, COUNTY OF	KTV630	155.4750	PP
	SAWYER, COUNTY OF	KTV630	158.9700	PP
	SAWYER, COUNTY OF	KV6128	158.8800	PL
	WAUWATOSA, CITY OF	WPHE753	451.2875	IW
APPLETON	OUTAGAMIE, COUNTY OF	WNSE753	453.6000	PL
EAGLE RIVE	VILAS, COUNTY OF	KSA312	155.6400	PP
EAU CLAIRE	WASHINGTON, TOWN OF	WNCN668	453.3500	PH
EAU CLAIRE	WISCONSIN, STATE OF	KA53431	155.0850	PL
EAU CLAIRE	WISCONSIN, STATE OF	KA53431	158.8950	PL
FOND DU LA	DAIRYLAND VETERINARY ASSOCIATE	KEU905	155.2800	PS
FOX POINT	FOX POINT, VILLAGE OF	KJF694	154.3400	PF
FOX POINT	FOX POINT, VILLAGE OF	KJF694	154.4450	PF
GLENDALE	GLENDALE, CITY OF	KAS600	154.2950	PF
GLENDALE	GLENDALE, CITY OF	KAS600	154.4450	PF
HILLSBORO	KOW KOUNTRY VETERINARY SERVICE	WRZ651	155.1750	PS
LACROSSE	CAMPBELL, TOWN OF	WSW762	154.1300	PF
LAKE GENEV	LINN, TOWN OF	WNSH823	155.7150	PL
METEOR	SAWYER, COUNTY OF	KYN952	154.0550	PL
NEOSHO	NEOSHO, VILLAGE OF	KWX227	154.2800	PF
NEOSHO	NEOSHO, VILLAGE OF	KWX227	154.2950	PF
NEOSHO	NEOSHO, VILLAGE OF	KWX227	154.3250	PF
NEOSHO	NEOSHO, VILLAGE OF	KWX227	154.4450	PF
NEW GLARUS	NEW GLARUS SCHOOLS	WNCP947	155.2200	PS
NEW RICHMO	NEW RICHMOND, CITY OF	WSW665	154.3250	PF
OSHKOSH	MERCY MEDICAL CENTER OF OSHKOS	KXC522	155.3400	PS
RIVER HILL	RIVER HILLS, VILLAGE OF	KJF695	154.3400	PF
SHOREWOOD	SHOREWOOD, VILLAGE OF	KDY394	154.3400	PF
SHOREWOOD	SHOREWOOD, VILLAGE OF	KDY394	154.4450	PF
SHULLSBURG	SHULLSBURG, CITY OF	WNSE750	453.9000	PL
SURING	LAMERS BUS LINES INC	WNCR892	155.2950	PS
WHITEFISH	WHITEFISH BAY, VILLAGE OF	KAS601	154.3400	PF
WHITEFISH	WHITEFISH BAY, VILLAGE OF	KAS601	154.4450	PF
WHITEWATER	LAUDERDALE LAGRANGE VOLUNTEER	KDJ317	46.2400	PF
WHITEWATER	LAUDERDALE LAGRANGE VOLUNTEER	KDJ317	46.3800	PF

West Virginia

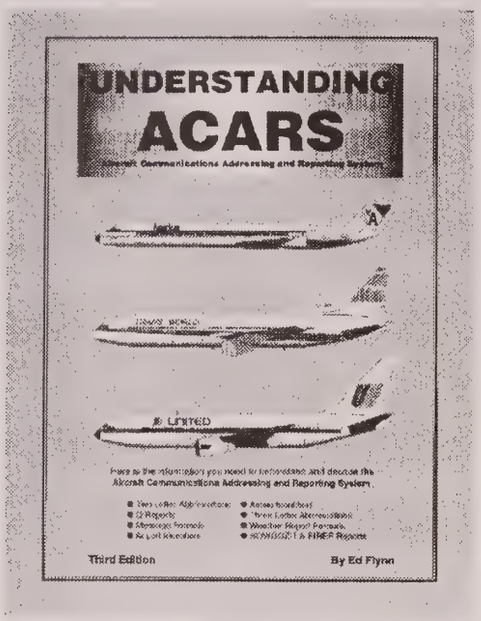
City	Licensee	Callsign	Freq	Sr.
	LINCOLN COUNTY FIRE FIGHTER AS	WNSD694	154.1750	PF
	LINCOLN COUNTY FIRE FIGHTER AS	WNSD694	154.2200	PF
	PRESTON, COUNTY OF	WNSE934	46.2800	PF
CARETTA	MC DOWELL, COUNTY OF	WNAZ570	154.0700	PF
CARETTA	MC DOWELL, COUNTY OF	WNAZ570	154.1750	PF
CARETTA	MC DOWELL, COUNTY OF	WNAZ570	159.0600	PF
CHARLESTON	KANAWHA COUNTY COMMISSION	KQD968	39.9800	PP
HARTS	MAIN HARTS CREEK VOL FIRE DEPT	WNCF488	154.1300	PF
HARTS	MAIN HARTS CREEK VOL FIRE DEPT	WNCF488	154.4450	PF
NEW MARTIN	NEW MARTINSVILLE, CITY OF	WPHE760	154.4562	IW
NEW MARTIN	NEW MARTINSVILLE, CITY OF	WPHE761	154.4562	IW

Wyoming

City	Licensee	Callsign	Freq	Sr.
	CAMPBELL, COUNTY OF	KTZ369	155.8800	PL
	SARATOGA, TOWN OF	KXB488	154.9950	PL
LOVELL	FIRE PROTECTION DISTRICT 1	WSW751	154.4300	PF
RAWLINS	CARBON, COUNTY OF	WQS863	154.6500	PP
RAWLINS	CARBON, COUNTY OF	WQS863	154.8750	PP
RAWLINS	CARBON, COUNTY OF	WQS863	155.5200	PP
RAWLINS	CARBON, COUNTY OF	WQS863	155.6700	PP
SHOSHONI	WYOMING, STATE OF	WQE460	156.1050	PH

PRODUCT REVIEWS

Recent Books



Universal Radio sent us the new third edition of their effort in the publishing field, Ed Flynn's Understanding ACARS. For you serious aircraft listeners, this is a must book. But I do mean serious. ACARS isn't for everyone.

Aeronautical Radio's Aircraft Communications Addressing and Reporting System (ACARS) has been on the air for well over a decade now. It is a digital system, transmitting information to and from aircraft on the nationwide frequency of 131.55 MHz. Remember all the in and out times, the weather info, fuel quantities and the wheelchair requests that you used to hear on Aeronautical Radio's enroute voice frequencies? All of this routine stuff has now migrated to the automated ACARS system. The personal messages, as well. And if you want to listen to any of it, sort of the way railroad buffs collect timetables and taxi listeners know all the cars zones, then this is what you want to be listening to.

But how? Understanding ACARS tells you how. Universal is the only commercial outfit interested in catering to this specialized market and this book seems geared toward promoting that effort. In the past they have usually even offered a copy of earlier editions of the book with their ACARS-capable digital readers. But what the hell, they are serious about it and are providing the product when no one else is, so more power to them. (So when are they going to come out with an MDT reader? Huh??)

The books introduction points out that it is not exactly exhaustive and that "many aspects...remain a mystery." Don't let this frustrate you since, like H.F. aeronautical communications, there are many variations among the airlines, the communications providers and so forth and it is likely NO ONE knows it all. And I don't suppose ARINC or anyone else is just going to be overly accommodating to us hobbyists. In other words, this represents all we know!

The book starts with a brief introduction to the ACARS system, followed by descriptions of the available equipment to decode the transmissions. It then goes into more detail on the system components and operating modes. We're only talking a few pages here and there's nothing that your typical scannerist won't be able to grasp.

They then launch into details of the digital messages: format, message types, abbreviations and codes. This is followed by PAGES of specific examples, showing the format used for Arrival and Departure reports, ETA reports and so forth. Plus, there are examples of personal messages logged on ACARS. (The FCC permits certain types of "administrative" messages to be sent on the ACARS enroute systems on a strictly secondary basis to operational communications.) These are always interesting. It's perfectly legal to monitor these. They are not a common carrier and aircraft comms are not protected by the ECPA.

A separate chapter is devoted to the digital system used by Air Canada, since they apparently have their own format and frequency. Tables in the back of the book list airport identifiers and air carrier codes, as well as a quick reference to deciphering aviation weather transmissions.

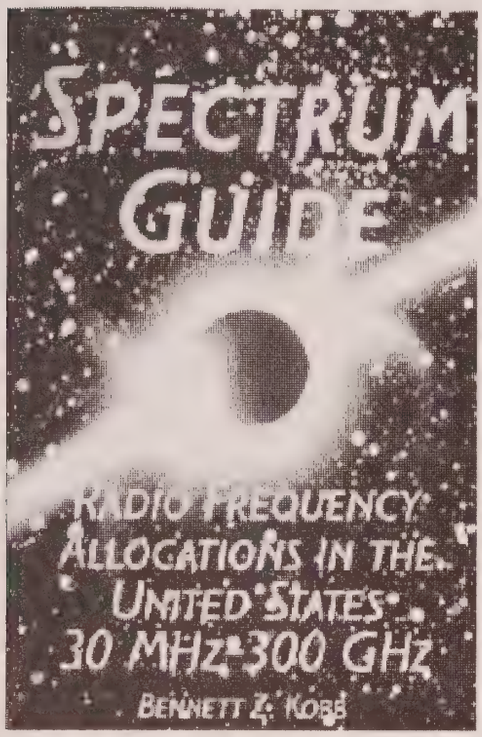
At 92 pages (soft cover), the book will provide you with almost everything you'll ever want to know about ACARS. And at $9.95, it is very reasonably priced. For that reason, we rate it Three and One-half Stars.

Understanding ACARS, by Ed Flynn. ISBN: 1-882123-36-0. Universal Radio, 6830 Americana Pkwy., Reynoldsburg, Oh. 43068. $9.95. Order #0012.

Bennett Kobb was kind enough to send us a copy of his book, Spectrum Guide - Radio Frequency Allocations in the United States, 30 MHz to 300 GHz. Mr. Kobb is a writer and researcher on frequency spectrum and allocation matters, as well as being the founder and/or editor of a number of trade publications over the years. I first came in contact with him through the Personal Radio Steering Group, the GMRS advocacy group. He mentioned his new book and obviously I was interested! And I wasn't disappointed.

The book contains 312 pages in an 8½ by 5½, soft-cover format. It retails for $34.95.

The books possibly-too-short introduction gives a description of the frequency spectrum, the regulatory administration thereof, an explanation of the generic types of services used and instructions on how to interpret listings in the book.



Each band of frequencies, starting at 30.00 to 30.56 MHz, is listed in order. The primary and secondary uses of each band are then given, followed by both U.S. Government and non-government (FCC) uses, where applicable, along with any footnotes containing regulatory details pertinent to the use of that band. "NG" footnotes, for example, deal with Non-Government uses, or exceptions to use, of certain bands. These are from the Table of Allocations in the FCC's Part 2 and, I presume, the National Telecommunications and Information Administration's government counterpart in their Manual of Regulations and Procedures. A textual description of the use of the band follows, ranging in length from a paragraph to multiple pages. In many cases, this is more information than you'll ever need! The book is copyright-dated this year, so the information is not only very accurate, but up-to-date as well!

Some of the descriptions may go a little too far. The pages dealing with the 162.0125 to 173.2 MHz band could have dealt with more of the extremely wide variety of users of this particular band, but instead concentrated on the FBI, then somehow drifted into a discussion of the old CONELRAD system! Descriptions of other bands, however, will sometimes contain info on the most obscure secondary allocations and semi-official uses sometimes permitted, information that certainly required a lot of effort to research and bring together into a single reference source. Material on other bands will contain data on pending or proposed reallocations and on allocations made only a few months ago. Kobb did his research and it shows.

I have only one complaint, and it's not even really a complaint. I just hate having to flip back and forth to look up a footnote - as I do with Part 2! I would have loved to have the footnotes printed with the allocation information. This could have easily been done with footnotes that only apply to one or two bands, but I realize that it would be impractical in the majority of cases. (One footnote, for example, might deal with a certain use, allowed in certain areas, but affecting six different bands!) So this remains only a wish and not a legitimate complaint, since I realize it's not really practical. (You'd have to be familiar with the allocation tables to see what I mean.) The book is certainly most useable as it is. The footnotes in the book are divided into three chapters, one each for International, U.S. and U.S. Government, just like in the FCC and NTIA tables.

Most of the data in the book is unquestionably available elsewhere. If anyone asks me, I always recommend shelling out the money for the FCC Rules and Regulations and, for the most part, you're all set. But having it all at your fingertips, in this format, is invaluable. And, of course, the detailed background information about each allocated band is indispensable. You've got your frequency band, you've got your FCC and U.S. Government allocations and you've got a general description of the uses of the band. What else could you want? Why, we're even thinking about buying a copy and sending it to Bob Kay!

At thirty-five bucks, the book is not exactly cheap. But it is most certainly worth the price. Hell, the two sets (at least) of FCC rule parts you'd have to buy to glean just the details provided in this book would set you back over forty dollars. And you won't have all the background info on band usage accurately and, for the most part, concisely provided by Mr. Kobb. I won't hesitate for a minute to recommend this book to any serious scanner hobbyist.

We rate the Spectrum Guide Three and One-half Stars.

Spectrum Guide from New Signals Press. $34.95. ISBN: 0-9641546-3-3. Order from Publications Services, Inc. 8870 Business Park Dr., Austin, Tx. 78759. 1-800-460-0090.

USSN

MANUFACTURERS PRODUCT ANNOUNCEMENTS

OptoScan53

Optoelectronics announces the new OptoScan535 add-on computer control interface board for the Radio Shack model Pro-2035 Scanner

The OptoScan535 provides optimum control in scanning with the ability to tune the receiver from the computer while increasing the scanning speed. The Pro-2035 equipped with the OS535 scans faster than the Icom R7100, AOR 8000 or any other scanner using computer control. When combined with a computer, the OptoScan535 makes using the PRO-2035 easier and much less confusing. Even when away from the scanner the computer can continue to search out those frequencies you want to monitor and record them into virtually unlimited numbers of memory locations. The unit also comes with two built-in CI-V interface converter jacks, eliminating the need for an external converter box.

One of the most exciting features of the OptoScan535 is that it can be used with the Scout for the Optoelectronics Patented Reaction Tuning. The Scout will automatically tune the Pro-2035, equipped with an OptoScan535, to the frequency recorded. The frequencies may also be recalled from any one of the 400 memories in the Scout to tune the receiver by Memory Tune.

The OptoScan535 provides signal decoding of CTCSS tones, DCS codes and DTMF (Touch Tone) characters.

The OptoScan535 is supported by such software programs as Probe, Scanstar, Scancat, Scanner Ware for Windows, Radio Manager for Windows and Wave for Mac.

The suggested list price of the OptoScan535 is $299.

Scout Reaction Tune

Optoelectronics is excited to announce that the Scout will now Reaction Tune and Memory Tune the following receivers: ICOM R7000, R7100 and R9000; AOR AR2700 and AR8000 and the Radio Shack models Pro-2005/2006 (equipped with an OS456) and the Pro-2035 (equipped with the new OS535).

The Scout performs the Patented Reaction Tune when in CAPTURE mode and connected to any of the above receivers with a mono cable. When the Scout captures a frequency it automatically tunes the receiver for monitoring. For Memory Tuning, a recorded frequency may also be recalled from any one of the 400 memories in the Scout to tune the receiver.

With a frequency range of 10 MHz to 1.4 GHz, the Scout distinguishes itself from a frequency counter by being able to defferentiate between random noise and coherent RF transmissions. These features are called Digital Filter and Auto Capture. An embedded microprocessor evaluates each measurement to determine when an actual RF frequency is dominant. This is the DIGITAL SIGNAL PROCESSING which makes Auto Capture and recording possible.

The Scout is a single range operating counter. A distinctive double beep informs you that a new frequency has been recorded, and a single beep indicates an already stored frequency has been hit again. The Scout is also equipped with a pager style vibrator to inform you when a frequency has been recorded. When in RECALL mode, you can scroll through and view all of your 400 frequencies and hits stored in memory.

The Scout's powerhouse performance continues on throughout the day and night with its equipped 10 hour discharge rapid charge NiCads, but when you go to sleep so does the Scout. The SLEEP mode allows the data in the Scout to be saved into its non-volatile memory. The Scout also features a custom 10 digit LCD display as well as an (EL) Backlight for night operation.

The suggested list price of the Scout is $449.00

Computer Control Interface

OPTOELECTRONICS announces the CX12AR Computer Control Interface for the AOR AR8000, and CIV receivers (Icom R7000, and R7100). The CX12AR not only allows CI-V to RS-232C conversion, but it provides complete interfacing for computer control of the Icom R7000 and R7100, which Icom's CT17 will not.

The CX12AR is the only converter with two operating modes, which are switch selectable between Full Duplex and Half Duplex. The dedicated squelch status input is wired for high speed scanning and a software controlled tape recorder control output is also provided on the unit.

The CX12AR converts TTL serial interface signal levels compatible with most personal computers, while allowing up to four different Optoelectronics devices equipped with serial ports to be connected to one computer port in a star network configuration.

The CX12AR can be used to download memory from the Scout to a PC. After downloading those frequencies, check them against the Spectrum CD Rom FCC database (optional). Switched in RS232 mode, the CX12AR can be used as a datalogging device for the popular M1 Frequency Counter. The CX12AR also has a software controlled tape recorder output.

Scanstar software is compatible for use with the Opto Scan456/535, Icom R7000 computer control and the AOR 8000. A demo version of Scanstar is included with all CX12AR purchases.

The suggested retail price of the CX12AR is $99.

For additional information contact:

Optoelectronics, 5821 NE 14th Ave.,Ft. Lauderdale, FL 33334 Tel:(305)771-2050 Fax:(305)771-2052

USSN

FCC NEWS

The FCC has released a proposal to allow routine use of signal boosters in a number of land mobile services. A signal booster is a device that receives an incoming signal, amplifies it and retransmits it with no change in frequency or bandwidth. Such devices are used to provide signal coverage in tunnels or parking structures or areas where coverage might otherwise be poor or nonexistent, such as canyons or valleys. Signal boosters are commonly used in the FM and TV Broadcast services but are also permitted in the Cellular Radiotelephone Service and even on certain Business Radio Service frequencies-those reserved for use at airports, 460.650 through 460.875 MHz.

The petitioner in this proceeding, an equipment manufacturer, has asked that the FCC allow signal boosters to also be used in other services, such as Private and Common Carrier paging systems at 929 and 931 MHz, 928/952 MHz Multiple Address Systems and all Private Land Mobile bands above 150 MHz. Both one- and two-way signal retransmission would be allowed under the proposal. Broadband signal boosters, which would relay a wide band of frequencies might also be permitted.

The FCC has issued a Notice of Inquiry into the matter of the spectrum requirements of state and local public safety agencies through the year 2010. The Omnibus Budget Reconciliation Act of 1993 authorized the use of spectrum auctions for certain bands and also directed the Commission to conduct a study of the needs of the Public Safety community, the amount of spectrum needed to meet those needs and the actions necessary to promote the more efficient use of the existing spectrum.

The FCC stated that comments received so far have been less than satisfactory, since they fail to identify the specific future requirements and the amount of spectrum needed. The FCC has divided public safety's future needs into two classifications: Conventional and "New Wideband Technologies." The latter includes uses such as the transmission of fingerprints, mug shots, building plans and real-time video, plus high speed mobile computer data terminals. The Association of Public Safety Officials, Inc. (APCO) estimates at least 25 MHz of added spectrum will be required for these uses by the year 2000 and an additional 50 MHz by 2010. The FCC, however, stated that comments received so far failed to identify the specific uses and the amount of spectrum needed for each predicted use.

The FCC has appointed a Public Safety Liaison Officer to work with public safety agencies. They will also initiate a data-collection proceeding to amass the information needed to make informed decisions regarding future spectrum requirements. They will consider a variety of options designed to ensure that public safety spectrum is used efficiently, such as shared trunked systems.

The data collection will consist of inquiries of various users as to how they are using their present frequencies and any measures that they may be taking to use them more efficiently in the future. They will be asked to identify the geographic area that they serve, the agencies with which they need to communicate and the feasibility of establishing shared systems. The data collection effort will also solicit input on public safety agencies' future needs and their predicted spectrum requirements, dividing them into low-speed voice and data communications and the newer, high-speed data technologies.

The second part of the Commissions action in the Plan consists of the consideration of the technical options available. One, to increase the number of available channels by narrowing the available channel spacing to as little as 5 kHz over time, is already under consideration. It would also allow trunking in bands below 512 MHz. The use of CMDA or TDMA digital techniques could also be allowed. Another alternative is the allocation of additional spectrum exclusively for new, narrowband technology. This would assume that such spectrum could be found, although the FCC is seriously pursuing the reallocation of the 380 to 400 MHz band from the U.S. Government to the private sector, if the Department of Defense agrees.

Changes in the licensing procedures and the combining of all available public safety frequencies into a single pool could also be considered as a means of promoting more efficient use of the spectrum.

The FCC has allocated the band from 219 to 220 MHz to the Amateur Radio Service for point-to-point, fixed links to be used in packet message-forwarding systems. The 219 to 220 MHz band is currently allocated for the Automated Marine Telecommunications Service (AMTS) and all amateur radio use will be on a secondary, non-interference basis.

Prior to its reallocation, the lower 2 MHz of the 220 to 225 MHz Amateur band was the primary resource for fixed links for interconnecting packet hub stations. When the 220 to 222 MHz segment was reallocated to the land mobile services, many of these stations were unable to secure new frequencies, particularly in the more congested metropolitan areas. This action will now provide additional frequencies for intercity "backbone" links for regional packet networks.

Up to 50 watts output power will be permitted in this band, with a maximum bandwidth of 100 kHz. Digital emissions only are being allowed. Link operators must hold a Technician or higher

class license. All operators using this band must notify any AMTS operator within 400 miles at least 30 days before commencing operation and must obtain written approval before operation if they are within 50 miles of an AMTS station.

The FCC has declined to adopt a proposal that would have allowed new applicants for Amateur Radio licenses to begin operation immediately under temporary authority. Under current rules, an operator who successfully completes the test for a higher class amateur license is allowed to operate using the greater privileges immediately, using the Certificate of Successful Completion of Examination issued by the Volunteer Examiner as authorization. No such provision is made for first-time amateur radio license applicants, however.

The majority of commenters, however, opposed the idea. They feared that there would be a high potential for abuse by persons fabricating their own call-signs and operating without a license. Also, since the FCC authorized the use of electronic filing last fall, the time required to receive a new license is usually only two to three weeks. Furthermore, the FCC allows a new licensee to begin operation as soon as the license data has been confirmed as being entered in the Commission's database. This can be within a few days of the electronically filed data being received by the Commission.

Therefore, for these reasons, the FCC has declined to adopt temporary licensing authority for new applicants in the Amateur Radio Service.

The FCC has granted a four-month construction deadline extension to a number of licensees in the 800 MHz Specialized Mobile Radio Service who were victims of fraudulent marketing schemes. These parties fell for the radio ads and TV "infomercials" that claimed that you could clean up in SMRS. The advertisers charged as much as $7000 to file applications in lotteries for SMRS licenses, licenses for which the parties could have applied for themselves for the price of the license fee. Most of these outfits have since gone belly-up, leaving the license holders wondering what to do with their licenses! Most were not aware that there is an eight-month construction deadline by which their station had to be placed on the air or the license would be forfeited, or that the license could not be sold before the station was constructed.

Lawyers representing a number of these licensees petitioned the FCC to grant them an extension until they could find funding sources to build or acquire their systems. The FCC said "tough luck," that it is the licensee's responsibility to be aware of, and comply with, the Commission's rules. In the last year, however, the FCC did change its rules to lengthen the construction period from eight months to one year. Therefore, they will grant a four-month extension to these licensees, most of whom obtained their licenses before the rule change went into effect.

Last August the FCC announced that it was instigating an investigation of allegations that there were irregularities in the conduct of the auction last July for licenses in the Interactive Video and Data Service. IVDS is a two-way point-to-multipoint radio service in the band from 218 to 219 MHz. It may be used to provide information, products or services to, and allow interactive responses from, subscribers, usually in conjunction with television programming.

After announcing that they would investigate a number of apparent irregularities in the IVDS auction process, this last February the FCC issued a Notice of Apparent Liability against Commercial Realty St. Pete, Inc. of Florida. The FCC also dismissed their IVDS applications and issued an Order to Show Cause why Commercial Realty shouldn't be barred from future auctions or, for that matter, from holding any FCC license.

It appears that in February of 1994, Commercial Realty's founder, James C. Hartley sold all outstanding shares of the company to his wife for $500. Even though his wife was elected President, Treasurer and Chief Executive Officer, Mr. Hartley was authorized to acquire 40% of the voting interest in the company and become its sole director, as well as being authorized to enter into and execute FCC applications and other documents in connection with the acquisition of IVDS licenses on behalf of the company.

The purpose of all this, of course, was to obtain preferences in certain IVDS markets - a 25% discount of the winning bid amount in some markets, deferred payment plans in others. These preferences were accorded by the FCC to minority and women-owned businesses.

Mr. and Mrs. Hartley both went to Washington for the IVDS auctions. Their representative submitted bids totalling $41,250,000, for IVDS licenses in twenty markets. Upon discussing the availability of equipment for the new band with manufacturers, however, Hartley later indicated that he would default on the required auction down-payments and encouraged other IVDS auction winners to do the same, in the hope that the FCC would extend the deadline. This was a direct violation of the FCC's anti-collusion rules.

It also became apparent the Hartley misrepresented his financial assets, certifying that he had a $4 million loan commitment that he, in fact, did not have. Testimony also revealed that Mrs. Hartley's only role in the company was to sign the corporations checks, indicating that their claim of status as a woman-owned business was also false.

A notice of forfeiture in the amount of $390,000 was levied against Commercial Realty for their willful and repeated violations of the FCC's rules. They were given thirty days to pay the fine or to appeal the decision.

USSN

BLUE ANGELS

by D. McMahan

Hillsboro, OR

The glint of sun and blue/yellow flash of F/A 18 hardware darted among a broken cloud cover and clear blue sky patches as the Blues announced their arrival onto the scene above the Hillsboro Airport tarmac with distinctive whine of turbine engines and the roar of afterburner tearing up the Oregon skies.

The Navy's Blue Angel Demonstration Team, scheduled to perform at Portland - Hillsboro Airport July 14, 15 and 16 in Hillsboro Oregon, had arrived on Thursday, July 13 at 1:00 P.M. amid 80 degree weather and calm wind conditions.

Through the crackle of radio static flowing from my scanner speaker, I could detect the pilot's voices snapping out commands and responding with call signs such as "BOSS" and "HOME-EE", as the team flew in pattern formation, identifying landmarks and references for the demonstration practice flight in just a few hours.

After an hour of flight within the allotted 5 mile and 17,000 ft. airspace to get familiar with the local territory, the Blues landed to prepare for the local greetings and to prepare for the practice demonstration flight. Not much scanner activity while the Blues are ground bound!

By 3:00 P.M., the Blues are again airborne! The practice flight demonstration is nearly as good as the main showtime demonstration! The scanner is again filled with sharp command voices overlaying the turbine engine background, landmark identifications are relayed to the team while group, solo and formation flying routines are smoothly executed. The following hour has speeding darts skyborne everywhere, then one tightly grouped diamond, gracefully loitering overhead, and then the spectacular bomb-burst maneuver followed by a chaos of jet contrails meeting before your eyes!

If you've seen the Navy Blue Angels Demonstration Team fly, then this a familiar scene that delights you every time it is witnessed. The radio chatter from flight leader to Team members is fairly regular from takeoff to landing and between Solo flight aviators.

To catch the action of the Blues, I used an AOR AR-2500 Scanner, a Realistic PRO-34 scanner, a Realistic PRO-60 scanner and a Uniden Bearcat BC8500XLT scanner, with each receiver set to capture a specific group of frequencies and one to scan known occupied frequencies.

This method seems to work well for me because I can monitor the known frequencies while searching for the unknown or rarely-used frequencies. Once I find another occupied frequency, it is stored into a permanent channel location for future use.

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Airshow Up-Date

Reprinted from our February issue, here is the schedule for the U.S. and Canadian military demonstration teams for the rest of the 1995 season.

August

	Blue Angels	Thunderbirds	Snowbirds
2	----------	----------	Saskatoon, SK
5	Columbus, OH	Chicago, IL	Red Deer, AB
6	Columbus, OH	Chicago, IL	Red Deer, AB
7	----------	----------	Grande Prairie, AB
9	----------	----------	Kamloops, BC
11	----------	----------	Abbotsford, BC
12	Dubuque, IA	Mid-Season Break	Abbotsford, BC
13	Dubuque, IA	Mid-Season Break	Abbotsford, BC
19	Reading, PA	Hill AFB	Quebec, QC
20	Reading, PA	Bozeman, MT	Quebec, QC
23	----------	----------	Baie Comeau, QC
25	NAS Miramar, CA	----------	----------
26	NAS Miramar, CA	Frederick, MD	Shearwater, NS
27	NAS Miramar, CA	Frederick, MD	Shearwater, NS
29	----------	----------	Yarmouth, NS

September

	Blue Angels	Thunderbirds	Snowbirds
2	NAS Barbers Point, HI	----------	Toronto, ON
3	NAS Barbers Point, HI	Offit AFB, NE	Toronto, ON
6	----------	----------	Thunder Bay, ON
9	NAS Whidbey Island, WA	Toledo, OH	Poretage la Prairie, NB
10	NAS Whidbey Island, WA	Toledo, OH	Poretage la Prairie, NB
16	Smyma, TN	Roswell, NM	Reno, NV
17	Smyma, TN	Roswell, NM	Reno, NV
20	----------	----------	Peterson, AFB
23	NAS Oceana, VA	Liberal, KS	NAWS Point Mugu, CA
24	NAS Oceana, VA	Liberal, KS	NAWS Point Mugu, CA
28	Sheppard AFB, TX	----------	----------
29	Sheppard AFB, TX	----------	----------
30	----------	Salinas, CA	Midland, TX

October

	Blue Angels	Thunderbirds	Snowbirds
1	Alexandra, LA	Salinas, CA	Midland, TX
4	----------	----------	Laredo, TX
7	San Francisco, CA	Langley AFB, VA	Page, AZ
8	San Francisco, CA	Charleston AFB, SC	Page, AZ
14	NAS Falon, NV	March AFB, CA	Moose Jaw, SK
15	----------	March AFB, CA	Moose Jaw, SK
28	Sheppard AFB, TX	NAS New Orleans, LA	----------
29	Sheppard AFB, TX	NAS New Orleans, LA	----------

November

	Blue Angels	Thunderbirds
4	NAS Cecil Field, FL	Daytona Beach, FL
5	NAS Pensacola, FL	Daytona Beach, FL
11	Homestead, FL	----------
12	Homestead, FL	----------

Frequencies

Thunderbirds
Performances - 322.95 / 141.85 or 143.85
Air-to-Air - 140.40
Ground - 235.250
Maintanence & support - 413.025 ("Thunderbird Control")

Snowbirds
Performances - 245.75

Blue Angels
Performances - 251.60, 275.35, 307.7
Ground/taxi - 143.60

BLUE ANGEL UPDATE - Confirmed in July - 251.6 has been replaced by 264.55 for the solo pair. The diamond formation continues to use 275.35, and 307.7 remains the show center freq. If Fat Albert makes a demo flight (using their JATO take-off!), they will be heard on 263.35 MHz. Runup and tower comms can be heard being relayed on 168.9 or 170.9. 168.9 is used for relaying airfield weather (before landing) and 170.9 is also used by maintenance. 143.600 appears not to be in use anymore.

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USSN Reprints

Reprints are made from the best available copy. They are made on a photocopy machine and folded into 8.5"X11" format. Check the box in front of the issues you would like to order and send to address below with payment or call your order in with a credit card. $2.50 per Issue. 800–890–6999.

1988 Volume One (10 Issues)

- ❒ **Jan/Feb**–P/R Realistic PRO 2004
- ❒ **Mar**–Cell Phone Freq. Layout–Pro 2004 Mods–Police Band Allocations
- ❒ **Apr**–P/R Radio Shack Discone–Amateur Radio Bandplan–P/R Bearcat BC 600XLT–Fire Band Allocations
- ❒ **May**–FBI–Blue Angels–P/R Regency TS 800 Model 2
- ❒ **Jun**–Military Airlift Command–Electronic Comm. Privacy Act–Alloca tions: 30.000 MHz to 30.980MHz, 150.010MHz to 150.995 MHz, 406.125MHz to 406.975 MHz
- ❒ **Jul/Aug**–Aircraft At Forest Fires–800 MHz Trunking–Allocations: 31.000 MHz to 31.980 MHz, 151.010 MHz to151.985 MHz, 407.000MHz to 407.975 MHz
- ❒ **Sep**–P/R Bearcat/Uniden BC205XLT–P/R Bearcat/ Uniden BC200XLT–Riding The Rails, RR Frequencies– Allocations: 152.0075 MHz to 154.995 MH
- ❒ **Oct**–MARS Military Affiliate Radio System–P/R GRE Super Converter–BC200/205XLT Cell Mods–McChord AFB–800MHz–Allocations: 155.010 MHz to157.980 MHz
- ❒ **Nov**–P/R Realistic PRO 34–Realistic PRO 34 Cell Mods– Cell Phone Monitoring–GRE Mods
- ❒ **Dec**–P/R AR3000–P/R AR880–P/R Antenna Specialties MON 52 Antenna–Allocations: 158.010 MHz to 158.985MHz

1989 Volume Two (12 Issues)

- ❒ **Jan**–P/R Larsen Dual Band Antennas–P/R Cobra SR 925
- ❒ **Feb**–G.M.R.S.–Air Refueling–Allocations: 159.000 MHz to 159.990MHz
- ❒ **Mar**–Pro 2004 MODS–Aerial Demonstration Teams–Monitoring The Goodyear Blimps–Allocations: 160.005 MHz to160.9950 MHz
- ❒ **Apr**–A Look At The Spectrum–Aerial Demonstration Teams–BC-200XLT Again (Sep 88 Reprint)
- ❒ **May**–FAA –P/R Realistic PRO 2005–P/R AOR AR900–P/R GW 1 Pre-Amp–BC200/205XLT Cell Mods–Aerial Dem onstration Teams
- ❒ **Jun**–Aircraft Communications–Aircraft Allocations Table–BC 200XLT Update–Meteor Burst Communica tions–Aerial Demonstration Teams
- ❒ **Jul**–Aeronautical Enroute–P/R Lapel Mike–Forestry Conservation–US Forest Service–AOR vs Uniden–Aerial Demonstration Teams–Allocations: 161.010 MHz to 162.000 MHz
- ❒ **Aug**–TV Sound–Aircraft Enroute Frequencies–Aircraft Ground Control–Aerial Demonstration Teams
- ❒ **Sep**–Aircraft Telephone–Aircradt Flight Test Frequen cies–Telecommunications Act Of 1989–Aerial Demon stration Teams
- ❒ **Oct**–Coax And Your Scanner–BC 200XLT Update–Hot Times On The Police Band–The Communications Act Of 1934–AWOS Automated Weather Observation System– Additional Aircraft Information–AMSAT–Power Radio Service
- ❒ **Nov**–P/R AOR 950–P/R GRE Super Converter II–Monitor ing Repeater Inputs–Allocation Table–RF Connectors– Portable Antennas
- ❒ **Dec**–P/R Search and Store Module Model SS 45 For PRO 2004, 2005–BC 200XLT Final Chapter–Cellular Informa tion–DXing Low Band–Portable Antennas–1989 Index

1990 Volume Three (12 Issues)

- ❒ **Jan**–P/R PS 90 Search and Store Module For PRO 2004, 2005–Highway Maintenance (National Band Plan and Freq. Code)–SF Quake of 89–Scanner Boredom
- ❒ **Feb**–Refueling Frequencies–P/R Super Amplifier–Turbo Scan 800 TS 2 Power Fix
- ❒ **Mar**–P/R RAC Frequency Log Program–Allocations 162.000 MHz to 173.39625 MHz
- ❒ **Apr**–P/R Leisure Electronics DSS 8 Digital Scrambler Silencer–Mobile Data Terminals–P/R Regency INF 7 Scanner–Telephone Maintenance Radio Service–Nicad Battery Test Jig
- ❒ **May**–P/R Regency Informant Series–Do It Yourself Glass Mount Antenna–FBI Profile Pt 1–Airshows
- ❒ **Jun**–P/R Radio Shack PRO 2022–FBI Profile Pt 2–Forest Products Radio Service–P/R Scan Manager Software
- ❒ **Jul**–Aircraft Communication–Drive Up Windows–P/R PRO 2006–P/R Max 800 Antenna–Allocations 450.010 MHz to 450.990 MHz
- ❒ **Aug**–Pilot To Metro And WX Radar Facilities–Airshow–FBI Profile Pt 3–Allocation Table
- ❒ **Sep**–Cher Concert–P/R Discone Antennas–P/R Realistic PRO 36–Allocations 453.000 MHz to 453.975MHz
- ❒ **Oct**–P/R MON 58 Antenna–A Look Inside Your Antenna– 800 MHz Aircraft Mobile Phone–P/R AR 2515
- ❒ **Nov**–Alcahol Tobaco Firearms ATF–P/R AR 1000–Motor Carrier Radio Service
- ❒ **Dec**–Aftermarket Products For Portable Scanners– Allocations 454.000 MHz to 454.975 MHz

1991 Volume Four (12 Issues)

- ❒ **Jan**–Optoelectronics Frequency Counters–Antennas And Coax–Intoduction to 800 MHz
- ❒ **Feb**–Frequency Counters–Simple Mobile Charger/Power Cord–P/R AR 3000–800 MHz Private Land Mobile Ser vice–Intelligence Codes/Phrases/Etc–Scanner Repeater Mod
- ❒ **Mar**–Future Of Scanning–P/R Radio Shack All Band Mobile Antenna–800 MHz Private Land Mobile Services– Pro 2004 Display Problem–Monitoring The Blue Angels
- ❒ **Apr**–PRO 2004 Display Backlight Fix–FCC Notice Of Inquiry–800 MHz Private Land Mobile Services–Trunked Systems–Public Safety Bands
- ❒ **May**–PRO 2022 800 MHz MOD–P/R GRE Superconverter 9001–Amateur Radio And Scanning–Automated Mari time Telecommunications Systems–The Manufaturers Radio Service
- ❒ **Jun**–P/R Icom IC 24AT–929 MHz Paging–P/R GRE 3001 Super Amplifier–Military Radio Systems–P/R Trident Highway Information Scanner
- ❒ **Jul**–Icom IC 24AT Pt 2–P/R Alinco DJ 560T–Marine Radio Monitoring–200 MHz Band–P/R Startek Frequency Counters

- ❒ **Aug**–800Mhz–VHF, UHF Ducting Effect–P/R AR 2500 with software–P/R Lakeview d 16 Discone
- ❒ **Sep**–FCC Authorization Act of 1991–1991 Index–Club Directory
- ❒ **Oct**–P/R AOR AR 2800–Everything You Ever Wanted To Know About GMRS
- ❒ **Nov**–Canadian Scanner Frequencies–Kansas 800MHz Plan–Club Directory
- ❒ **Dec**–Frequency Counters–P/R Radio Shack HTX 202–Aircraft Carrier Landings–1991 Index

1992 Volume Five (8 Issues)

- ❒ **Jan**–Traveling With Your Radio–P/R PRO 37–Allocation Table
- ❒ **Feb**–New Jersey Scanner Law Reform–P/R Shinwa SR001 Scanning Receiver–Cell Phone Frequency Plan–P/R ACE GW 2 Wide Band Amplifier
- ❒ **Mar**–P/R Icom R 1–Frequency Counters–Cellular Chan nel Plans
- ❒ **Apr**–P/R Ventenna Model VT 15S–Auto Racing–P/R Icom R 100–Public Safety Log Sheet–P/R Alinco DJ 580L
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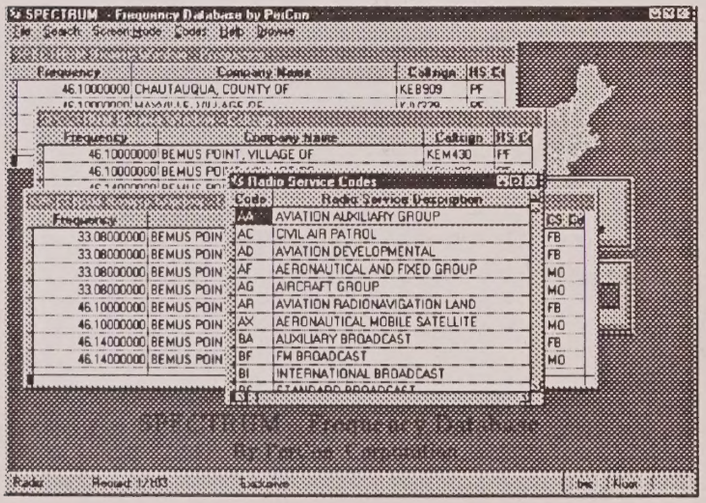

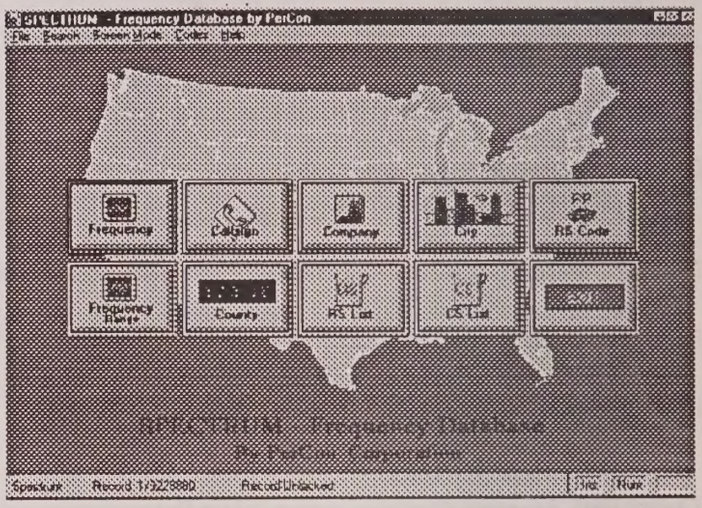

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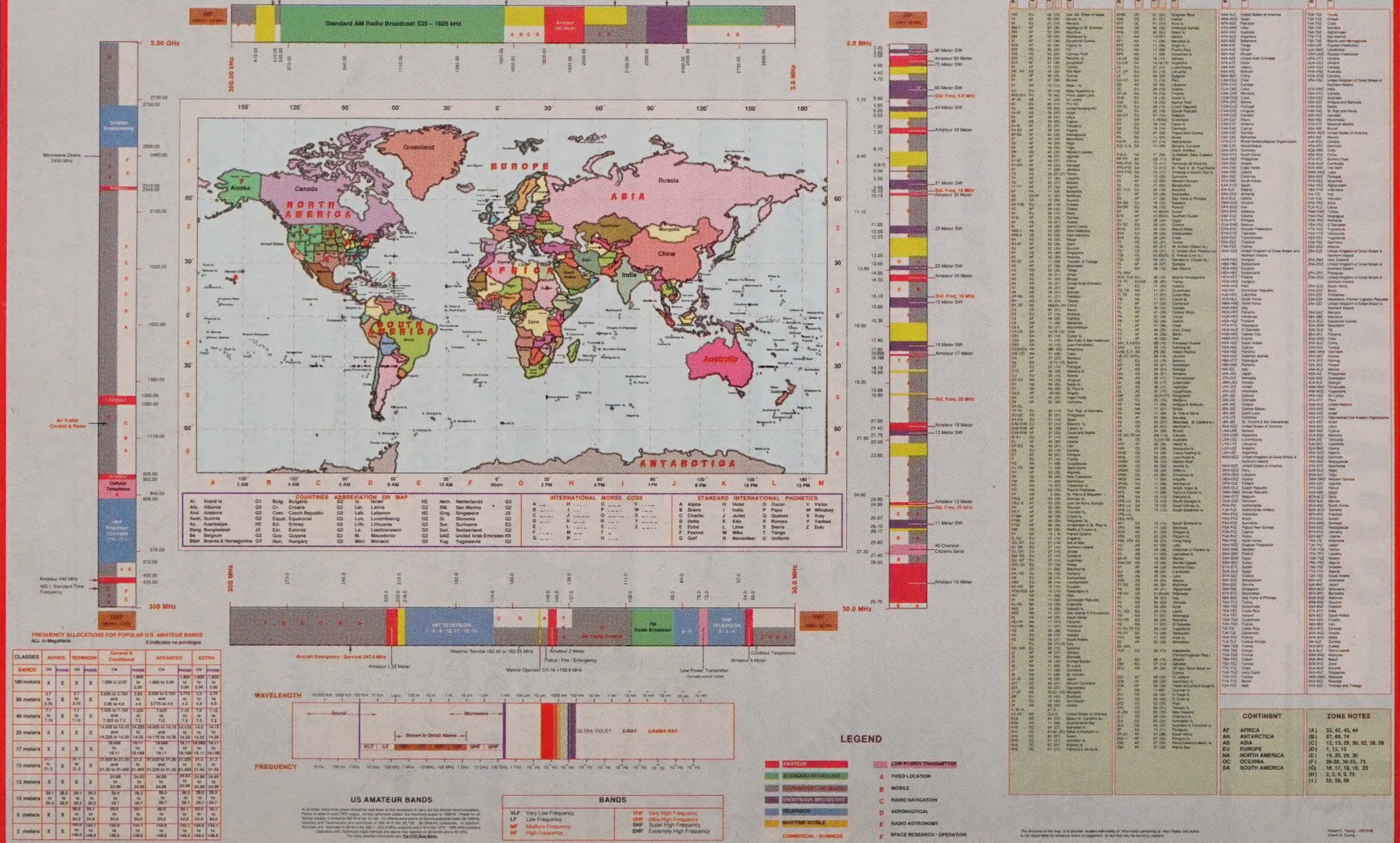

COUNTRIES ABBREVIATION ON MAP

Al.	Aland Is.	G1	Bulg.	Bulgaria	G2	Ital.	Italy	H2	Neth.	Netherlands	G2
Alb.	Albania	G2	Cr.	Croatia	G2	Lat.	Latvia	G2	SM.	San Marino	G2
And.	Andorra	G2	Czec.	Czech Republic	G2	Leb.	Lebanon	H2	Sing.	Singapore	J2
Aust.	Austria	G2	Equat.	Equatorial	G2	Lux.	Luxembourg	G2	Sl.	Slovenia	G2
Az.	Azerbaijan	H2	Eri.	Eritrea	H3	Lith.	Lithuania	G2	Sur.	Suriname	E3
Bang.	Bangladesh	J3	Est.	Estonia	G2	Li.	Liechtenstein	G2	Swi.	Switzerland	G2
Be.	Belgium	G2	Guy.	Guyana	E3	M.	Macedonia	G2	UAE	United Arab Emirates	H3
B&H	Bosnia & Herzegovina	G2	Hun.	Hungary	G2	Mon.	Monaco	G2	Yug.	Yugoslavia	G2

INTERNATIONAL MORSE CODE

A	.-	H	....	O	---	V	...-
B	-...	I	..	P	.--.	W	.--
C	-.-.	J	.---	Q	--.-	X	-..-
D	-..	K	-.-	R	.-.	Y	-.--
E	.	L	.-..	S	...	Z	--..
F	..-.	M	--	T	-		
G	--.	N	-.	U	..-		

STANDARD INTERNATIONAL PHONETICS

A	Alpha	H	Hotel	O	Oscar	V	Victor
B	Bravo	I	India	P	Papa	W	Whiskey
C	Charlie	J	Juliet	Q	Quebec	X	Xray
D	Delta	K	Kilo	R	Romeo	Y	Yankee
E	Echo	L	Lima	S	Sierra	Z	Zulu
F	Foxtrot	M	Mike	T	Tango		
G	Golf	N	November	U	Uniform		

FREQUENCY ALLOCATIONS FOR POPULAR U.S. AMATEUR BANDS

ALL in Megahertz X indicates no privileges

CLASSES	NOVICE		TECHNICIAN		General & Conditional		ADVANCED		EXTRA	
BANDS	CW	PHONE	CW	PHONE	CW	PHONE	CW	PHONE	CW	PHONE
160 meters	X	X	X	X	1.800 to 2.000		1.800 to 2.000		1.800 to 2.000	1.800 to 2.000
80 meters	3.7 to 3.75	X	3.7 to 3.75	X	3.525 to 3.750 and 3.80 to 4.0	3.525 to 4.0	3.525 to 3.750 and 3.775 to 4.0	3.775 to 4.0	3.5 to 4.0	3.525 to 4.0
40 meters	7.1 to 7.15	X	7.1 to 7.15	X	7.025 to 7.150 and 7.225 to 7.3	7.225 to 7.3	7.025 to 7.3	7.125 to 7.3	7.0 to 7.3	7.0 to 7.3
20 meters	X	X	X	X	14.025 to 14.150 and 14.225 to 14.350	14.225 to 14.350	14.025 to 14.350	14.175 to 14.350	14.0 to 14.350	14.0 to 14.350
17 meters	X	X	X	X	18.068 to 18.110	18.111 to 18.168	18.068 to 18.110	18.111 to 18.168	18.068 to 18.110	18.111 to 18.168
15 meters	21.0 to 21.2	X	21.1 to 21.2	X	21.025 to 21.200 and 21.275 to 21.400	21.275 to 21.400	21.025 to 21.450	21.275 to 21.450	21.0 to 21.450	21.275 to 21.450
12 meters	X	X	X	X	24.89 to 24.99	24.931 to 24.99	24.89 to 24.99	24.931 to 24.99	24.89 to 24.99	24.931 to 24.99
10 meters	28.1 to 28.5	28.3 to 28.5	28.1 to 28.5	28.3 to 28.5	28.0 to 29.7	28.3 to 29.7	28.0 to 29.7	28.3 to 29.7	28.0 to 29.7	28.3 to 29.7
6 meters	X	X	50.0 to 54.0	50.1 to 54.0	50.0 to 54.0	50.1 to 54.0	50.0 to 54.0	50.1 to 54.0	50.0 to 54.0	50.1 to 54.0
2 meters	X	X	144.0 to 148.0	144.1 to 148.0	144.0 to 148.0	144.1 to 148.0	144.0 to 148.0	144.1 to 148.0	144.0 to 148.0	144.1 to 148.0

US AMATEUR BANDS

At all times, extremely power should be kept down to the necessary to carry out the desired communications. Power is rated in watts PEP output. Unless otherwise stated, the maximum output is 1500 W. Power for all Morse classes is limited to 250 W in the 10, 15, 160 - 10 kilowatts sent and is all Novice authorized bands 28.100MHz. Novices and Technicians are restricted to 200 W in the 28, 10 & 28.300 kHz subbands. In addition Novices are restricted to 50 W in the 3.6 - 3.5 kHz subband and 1 W in the 1270 - 1290 kHz subband. Operators with Technician class licenses are restricted to 200 W on frequencies above 50 MHz.

For more detailed information see The FCC Rule Book.

BANDS

VLF	Very Low Frequency	VHF	Very High Frequency
LF	Low Frequency	UHF	Ultra High Frequency
MF	Medium Frequency	SHF	Super High Frequency
HF	High Frequency	EHF	Extremely High Frequency

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LOW POWER TRANSMITTER

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B MOBILE
C RADIO NAVIGATION
D AERONAUTICAL
E RADIO ASTRONOMY
F SPACE RESEARCH / OPERATION

DXCC COUNTRIES LIST

Radio Prefix	Continent	ITU Zone CQ Zone	Countries
HK0	SA	12 (11)	Sala. Isl. Chiar of Malpe
HL	AS	44 (40)	Korea, Rep. of
HM	AS	27 (24)	Korea
HP	CA	50 (35)	Aguadulce & St. Brandon
HR	CA	50 (35)	Honduras
HS	AS	49 (26)	Thailand
HV	EU	15 (28)	Vatican City State
HZ	AS	39 (21)	Saudi Arabia
I	EU	15 (28)	Italy
IA	EU	15 (28)	Italy
IB	EU	15 (28)	Italy
IC	EU	15 (28)	Italy
ID	EU	15 (28)	Italy
IE	EU	15 (28)	Italy
IF	EU	15 (28)	Italy
IG	EU	15 (28)	Italy
IH	EU	15 (28)	Italy
II	EU	15 (28)	Italy
IJ	EU	15 (28)	Italy
IK	EU	15 (28)	Italy
IL	EU	15 (28)	Italy
IM	EU	15 (28)	Italy
IN	EU	15 (28)	Italy
IO	EU	15 (28)	Italy
IP	EU	15 (28)	Italy
IQ	EU	15 (28)	Italy
IR	EU	15 (28)	Italy
IS	EU	15 (28)	Italy
IT	EU	15 (28)	Italy
IU	EU	15 (28)	Italy
IV	EU	15 (28)	Italy
IW	EU	15 (28)	Italy
IX	EU	15 (28)	Italy
IY	EU	15 (28)	Italy
IZ	EU	15 (28)	Italy
J2	AF	48 (36)	Djibouti
J3	NA	11 (08)	Grenada
J4	EU	28 (14)	Greece
J5	AF	46 (37)	Guinea-Bissau
J6	NA	11 (08)	St. Lucia
J7	NA	11 (08)	Dominica
J8	NA	11 (08)	St. Vincent & the Grenadines
JA	AS	45 (27)	Japan
JD	OC	90 (32)	Minami Torishima
JD	OC	90 (32)	Ogasawara
JE	AS	30 (17)	Iran
JF	AS	30 (17)	Iran
JG	AS	30 (17)	Iran
JH	AS	30 (17)	Iran
JI	AS	30 (17)	Iran
JJ	AS	30 (17)	Iran
JK	AS	30 (17)	Iran
JL	OC	65 (32)	Nauru
JM	AF	53 (39)	Comoros
JN	EU	15 (28)	Belgium
JO	AS	30 (17)	Iran
JP	AS	30 (17)	Iran
JQ	AS	30 (17)	Iran
JR	AS	30 (17)	Iran
JS	AS	30 (17)	Iran
JT	AS	23 (30)	Mongolia
JU	AS	23 (30)	Mongolia
JV	AF	48 (36)	Djibouti
JW	EU	18 (27)	Svalbard
JX	EU	18 (27)	Jan Mayen
JY	AS	39 (21)	Jordan
K	NA	11 (08)	United States of America
KA	OC	50 (35)	Philippines
KB	NA	11 (08)	United States of America
KC	AF	53 (39)	Comoros
KD	NA	11 (08)	United States of America
KE	NA	11 (08)	United States of America
KF	NA	11 (08)	United States of America
KG	NA	11 (08)	United States of America
KH	OC	61 (31)	Wake Island
KH	OC	61 (31)	Johnston Island
KH	OC	61 (31)	Midway Island
KH	OC	61 (31)	Kingman Reef
KH	OC	61 (31)	Palmyra & Jarvis Is.
KH	OC	61 (31)	Kingman Reef
KH	OC	61 (31)	American Samoa
KH	OC	61 (31)	Howland Is.
KH	OC	61 (31)	Baker Is.
KH	OC	61 (31)	Jarvis Is.
KH	OC	61 (31)	Guam
KH	OC	61 (31)	Guam
KH	OC	61 (31)	Guam